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An Investigation into the Nationally Funded ICT-related Initiatives in Tasmania: 1996 to 2005

by

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Abstract

Over the past twenty years regional Australia has been the recipient of publicly funded development and stimulus initiatives that are premised on assumptions about the benefits that Information and Communications Technologies (ICTs) can bring to a region.

In Tasmania, the Australian Federal Government, through projects such as the Intelligent Island Board, and the Launceston Business Development fund, has made funding available to stimulate and encourage existing and new service providers to develop innovative, new, high tech business applications, content, and infrastructure.

The objective of this research is to seek to gain an understanding of the perceptions, motivations and actions of key people involved in establishing and administering these publically funded ICT-related programs within Tasmania during the ten year period of 1996 to 2005.

The research methodology adopts an interpretivist epistemology and employs qualitative analysis of a series of case studies of a single timeframe and related programs; extracting data interpretively from a series of distinct interviews to derive a series of effect-outcome models, and to gain a rich, deep interpretation of the intentions of the key people involved in the process of establishing and administering these programs. The research is exploratory, in that is based on raw data gained from interviews with experts, and is theory building, because it seeks to build models of relationships between the input factors and outputs of these research programs.

This research seeks to gain insight into the motivations and actions of these key individuals as they implemented these programs in an Australian region, and to identify the key factors that influenced decision making in these programs. The outcomes of this research are relevant to both academics and practitioners interested in the process of establishing and administering programs designed to stimulate and encourage ICT-related programs within an Australian regional economy.

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Chapter One – Introduction

Regional Australia has been, and is, the recipient of many publically funded programs that are premised on assumptions about the benefits of Information and Communication Technologies (ICTs) in support of the development of regional economies. Over concurrent periods of time these regions have experienced reduction in basic services, periods of economic hardship due to environmental and financial factors, and increasing distance between the ICT infrastructures present in metropolitan and regional Australia.

From a research perspective, consideration of these funding programs and their outcomes present challenges on how to meaningfully characterise the impact of ICTs development programs on regional Australia. These challenges are compounded by the complex and diverse nature of regional development, by consideration of the different measures by which it can be achieved, and the lack of clarity in understanding of the roles that ICT and the development of ICT infrastructure can play in reviving and sustaining regional communities.

The exploratory research reported in this thesis examines the issues surrounding ICT infrastructure development in a regional context in Australia. Specifically the thesis deals with a number of government funded ICT programs and their outcomes in the state of Tasmania over the period 1996 to 2005.

Australia is a Commonwealth, with three tiers of government: Federal, State and Local Government. The national federal government is based in Canberra and is a bicameral parliament with representation across the whole of Australia. The upper house, or Senate, has elected representatives from each of the States of Australia, and one of the roles of Senators is to protect the interests of their respective state. Australia is geographically divided into six States and two Territories. Tasmania is an island state in the Commonwealth of Australia with a separate state legislature, and a bicameral parliament. The division of powers between national and state governments arises from historic contexts, and is both complex and dynamic. This thesis is primarily concerned

with nationally funded ICT programs that are specifically targeted at regional development within the State of Tasmania.

This chapter provides an introduction to the thesis, states the research objectives and research questions. The contribution that this thesis makes to the theory and practice of Information Systems (IS) is highlighted in the area of understanding the nature and outcomes of publically funded ICT development programs in a regional context. The first section of this chapter presents a brief literature review that provides an overview of the issues associated with the analysis of ICT funded programs in regional localities, especially the relationships between the key factors and perceived outcomes of such programs. The research objectives and primary research questions of this thesis are then stated. The scope of this research is then discussed, based on eight interviews conducted with seven senior managers, each of whom was closely involved in decision making and administration associated with ICT funded programs in Tasmania. The contributions to the knowledge and practice of Information Systems, and the development of an understanding of the impact of ICT funded programs in regional Australia, are then presented. Finally, an overview of the thesis structure is presented.

1.1 Background

> "the role of ICT… in economic growth and social change has received considerable attention in recent years *[but]* … reliable and comprehensive indicators are needed to track developments in new information technologies and understand their impacts on our economies and societies" (OECD, 2002, p. 3).

Community Informatics researchers are well aware of the huge volume of literature on the impact of ICTs on economic (particularly urban) development. Gurstein (2000) stated that research into Community Informatics needs to deal with the virtual world of virtual communities and virtual relationships, and also with the physical aspects of real communities and ICT infrastructure. This research program deals with ICT funded at both virtual and physical levels, in terms of the social and business impacts of the ICT

Development Programs, and the actual ICT infrastructure that was acquired through these programs.

The published literature on Community Informatics often relies on a simplistic assumption that 'what is good for the economy is good for the community' (Keen, Steer, & Turner, 2007). Too frequently their attempts to assess the impact of technology adoption on the social fabric of communities have been marginalised by the prevalence of this 'dominant discourse'. While it is clearly problematic to marginalise questions relating to the influence of ICTs on the social framework of communities, particularly in regional areas, it does highlight the challenges that need to be overcome if more effective ICT-related interventions are to be designed, initiated and implemented.

In examining the role of ICTs on regional areas it is easy to be in support of the need for a recalibration from purely economic indicators to an aggregation of indicators encapsulating social and community dimensions. It is however, considerably more difficult to identify those indicators and the mechanisms for their meaningful aggregation. This is the case in regional Australia, where even obtaining an official and consistent definition of 'regional' is fraught with difficulties. Indeed, while linking economic, social, and community factors together is an important and worthy step, it has not led to the identification of mechanisms for achieving such a meaningful aggregation (Steer & Turner, 2004).

This exploratory research aims to contribute to an understanding of the issues surrounding what is meant by ICT-related development in a regional context. It reports on the motivations and actions of key players as they attempted to harness ICT-related technology to enhance the social and business infrastructure within Tasmania.

1.2 ICTs and Regional Development

Despite the difficulties of defining 'regional' that have been considered elsewhere (Steer & Turner, 2004), it is evident that the overall trends of slower industrial growth, decreasing rural populations and the emergence of issues associated with the adequacy and/or affordability of telecommunications are very much a part of the everyday

experience of the information economy for many Australians in regional areas, outside of the main metropolitan areas (DCITA, 2002).

In this context, it is not surprising that there has been considerable support for the deployment of ICTs as a mechanism to revitalise regional Australia. However, while ICTs clearly have the potential to connect regional Australia to the world, their impacts have been far from uniform and not always beneficial. ICTs and in particular eCommerce "… raises the possible outcome of increased market share and dominance of large urban based companies in regional areas rather than the promised expansion of regionally based companies outside their regions" (Coulthard, 2001, p. 420).

The lack of uniformity of benefits is indicative of the fact that the implementation of ICTs are highly differential, depending on existing local regulatory, economic, and social infrastructure context, and that in turn re-emphasises the importance of an assessment of the unique characteristics and circumstances of individual regional areas (Hearn, Kimber, Lennie, & Simpson, 2005). From a different but complementary perspective Lloyd and Hellwig (2000) have highlighted how socio-demographic factors are also extremely influential in relation to determining the extent to which Australians use ICTs and participate in the information economy. Both perspectives highlight how both regional and individual differences are central to determining the outcomes of the development of ICTs infrastructure.

More broadly, it is interesting to consider the perspective of Hicks and Nivin (2000) who, in examining the huge US investment in ICTs during the 1980s, researched the difficulty of finding consistent evidence of measurable impacts of these investments on the US economy. Hicks and Nivin found that when this ICT investment was assessed in isolation there was "no evidence of IT-induced income gains …" (2000, p. 115), rather there was significant evidence to suggest that a "marked geographical concentration of IT investment" underscored the existence of the strong localisation effects of ICT impacts. Simpson (2001) also noted that the majority of ICT-related economic growth in the US was centralised in the relatively small locations of Silicon Valley and Seattle (Amazon.com and Microsoft's headquarters). Significantly, there

has tended to be limited investigation of how policy initiatives, premised on assumptions about the positive impact of ICTs, have actually been tailored (or not) to accommodate differences in regions. The implicit assumption of one size fits all has rarely been questioned or investigated in detail (Tödtling & Trippl, 2005).

A basic tenant of this thesis is that ICT-related investment and the deployment of ICTs has had an impact on regional development in Australia. While ICTs can connect a region to the global economy, they also expose the region to global competition and the associated socio-economic uncertainties of globalisation. What remains unclear is the extent to which this net impact will be positive (Coulthard, 2001; Wilde, Swatman, & Castleman, 2000; Yousefi, 2011). More seriously, within the current conceptualisation of the issues there is no way of meaningfully assessing whether the introduction of ICTs will mitigate, exacerbate or simply replicate the pre-existing urban/regional divide (Barzilai-Nahon, 2006; Emrouznejad, Cabanda, & Gholami, 2010; Steer & Turner, 2004; Willis & Tranter, 2006).

1.2.1 Analysing ICT Development Programs

In recent years the provision of telecommunications, and especially broadband services, to rural and remote Australia has become a significant political topic, especially with the advent of the National Broadband Network project that seeks to provide broadband networking infrastructure to all Australians. Not surprisingly this has resulted in a large number of ICT-related policies, projects and schemes aimed at issues such as maintaining equity of access to ICT services, bridging the digital divide, providing regional economic growth, and empowering local communities. It has also given rise to an increasing number of theories and models on best practice (Singh, Molla, Karanasios, & Sargent, 2008; Tödtling & Trippl, 2005).

Unfortunately, what is often missing from these endeavours is a clear articulation of the specific goals of the projects in relation to how their impact will be assessed, what outcomes are anticipated, and over what timeframe these outcomes may accrue.

At the Australian national level this can be seen in the HealthConnect project, estimated to cost AU$300 million (Dearne, 2005), which is the Australian National, State and Territories Governments' planned nationwide electronic health record system "… to improve the flow of information across the healthcare system through the electronic collection, storage and exchange of consumer health information" (Productivity Commission, 2005, p. 260).

A report by the Australian Government's Productivity Commission notes, "Overall, the approach taken in assessing the costs and benefits of HealthConnect has been disjointed …", and that "… the fact that so many unresolved issues remain after seven years of research and development suggests that there have been gaps in the planning and evaluation of the project and/or how these have been acted upon" (Productivity Commission, 2005, p. 260).

In Tasmania expectations were high for significant change in economic and social terms, based on the promises of several multi-million dollar ICT-based development projects. One of these projects, the AU$30 million Telstra Broadband-eLab, setup in the state's north, as a test and development site for broadband and multimedia applications (Mitchell, 2003). However, according to industry groups in Tasmania the Telstra Broadband-eLab had "…not delivered on its promises to either Launceston or the Tasmanian IT industry" (Mitchell, 2003, para. 4).

At the broadest level, this highlights the problem that if the goals of ICT-related regional development are vague, it remains very difficult to be able to assess whether they have been achieved. Indeed, without clarity any project is open to interpretation of success and/or failure depending on an evaluator's perspective and priorities.

This is more than just of academic interest; there can be serious consequences if effective evaluations of such projects are not conducted. If the impact of ICTs is identified overall as positive when in fact it has been negative, this may lead to either a continuation of the same policies that are in reality having a negative effect, or the scaling down or the withdrawal of the initiatives due to the perception that they have

accomplished their aim. Conversely, if the impact of ICTs is identified overall as negative when in fact it has been positive again this may lead to undesirable policy changes where successful programs are reduced or stopped to the detriment of the region (Chester, 2003).

1.2.2 Evaluation of ICT Programs

The evaluation of ICT programs shares a similar difficulty of definition with many of the other commonly used terms to describe components of ICT-related initiatives (Alampay, 2006). Authors such as Karlsson and Maier et al. (2010) and Brown and Grant (2010) recognise the need for, but also the difficulty of defining and differentiating between programs that fund ICT development and deployment, and programs that fund regional development based on ICT.

The lack of consistency in definition has caused and has the potential to continue causing a misalignment between the goals of evaluations and their outcomes. This is highlighted in a report that reviewed 20 years of accumulated knowledge and statistics on the adoption and use of information technologies within the home. In his report Papadakis (2001) contends that despite the vast amount of data collected, in the main, most of the assessment of the impact of information technology within the domestic environment had missed the point - the true significance of ICTs is not in the technology itself, but rather in its use and the consequences of its use.

Similarly, Sorensen (2000) questions the use of a 'single picture' representation of regional Australia, insisting that this flawed depiction masks a diverse and complex range of economic and social conditions which are multi-faceted, complex, interrelated and dynamic. Further, Sorensen (2000, p. 17) concludes that there is a "… need to understand better how Australia's regional economies operate and are evolving", and that "… the measurement and analysis of regional economic and social well-being in Australia requires in-depth clarification, focusing especially on the more intangible lifestyle, wealth, taxation, demographic and cost of living aspects …".

In correlating numerous case studies and evaluations on the contribution of publically accessible ICT centres to socio-economic development, Sey and Fellows (2011) found that at best the body of research presented a fragmented picture of their contribution. They did find there is a movement away from relying on anecdotal evidence, but that efforts in this direction have been restricted by the inability to make unambiguous statements about influence exerted on socio-economic development by access to ICT. Significantly Sey and Fellows also conclude that "… it is not always clear whether observed or perceived downstream impacts are directly related to public access ICT use or to other factors" (Sey & Fellows, 2011, p. 192).

It can be seen in the literature that scholars have been debating for more than 20 years about the return on investment from ICT projects, in all their forms, without coming to a consensus as to whether the economy as a whole has benefited for this expenditure (Peslak, 2003). A study of data by Peslak (2003) that related to the ten year period from 1989 through to 1999, using both financial and market based productivity measures at the firm level, rather than at the industry or national level, in the USA concluded that despite popular rhetoric "… the overall results do not show clear consistent positive results for the relationship between information technology spending and firm level productivity" (Peslak, 2003, p. 80).

These discussions reveal the difficulty in developing and utilising individual assessments and aggregating multiple measures. The dependent variables have not been identified; let alone the characterisation of the independent variables in the evaluation of these programs. They also point to the difficulty of being able to accurately compare results across regions.

The more geographically specific and tailored an assessment is to a specific ICT or region, the more difficult it becomes to compare it with other regions. Further, the outcomes of any regional development initiatives can carry different values in different regions, for example, creating ten new jobs in a large regional city is always welcomed, but those same jobs created in smaller, struggling regional centres may have a much greater significant impact on the local economy and community.

1.2.3 The Need for Alternative Assessment of ICT Development Programs

From an international perspective, contemporary work from the United Nations (UN) provides some insights that might assist in refining tools and techniques for assessing the impact of ICTs on regional Australia. The United Nations Development Program's Human Development Index (HDI) and the Genuine Progress Indicator (GPI) are two emerging major alternative measurement processes that are gaining some international support and credibility (ABS, 2002).

The Human Development Index (HDI) "… was created to re-emphasise that people and their lives should be the ultimate criteria for assessing the development of a country, not economic growth …" (UNDP, 2009, p. 3). The HDI summarises three basic dimensions of human development: "… living a long and healthy life, being educated and having a decent standard of living …" (UNDP, 2003, p. 2). This is achieved by combining measures of life expectancy, school enrolments, adult literacy rates and per capita income rates. However, the United Nations Development Programme (UNDP) acknowledges that the HDI is only a "useful starting point" as it "… omits several vital aspects of human development, notably the ability to participate in the decisions that affect one's life" (UNDP, 2003, p. 60). Further, the UNDP recognises that more complete pictures of human development require the analysis of "… other human development indicators and information" (UNDP, 2003, p. 60).

1.3 Research Problem

A review of the literature suggests that much of the published material has focussed on the development of quantified models that characterise the costs and benefits of ICT funding programs. These models are often dealing with macro-economic issues, or are employing simplified assumptions regarding the actual impact of such funding programs. This research seeks to develop an understanding of the nature of the intended and actual impact of ICT funding programs upon regional Australia, by adopting an interpretive approach. Eight interviews with senior managers are used as the primary source of data to develop a deep understanding of the relationships between input factors and outcomes of ICT grant funding programs, using an emergent, qualitative approach to the analysis. This thesis seeks to develop a basic model of ICT grant

funding programs that is based on these eight interviews. No claims to generalisation beyond the scope and context of these interviews are made in the thesis.

There is a lack of reliable, contemporary quantitative data that meaningfully characterises the outcomes of nationally funded ICT development programs in Tasmania. A variety of data is available from government sources (ABS, 1996-2005) that relates to economic development during the period of study of this research program. However, such data is more general than the regional focus of this research program, and cannot be interpreted as meaningfully characterising the outcomes of these regional ICT development programs.

1.4 Research Objectives

This thesis seeks to contribute to the discipline of Information Systems by developing an emergent model of the relationships between the input factors and associated outcomes of ICT development programs in Tasmania. This contribution is based on qualitative analysis of the contents of eight interviews with seven senior managers who were involved in a range of nationally funded ICT development programs in Tasmania over the period 1996 to 2005.

The ICT development programs were chosen from those funded by the Australian Federal Government in Tasmania over 1996 to 2005. The selection was based on being funded by the Federal Government, being significant programs within the Tasmanian context, and the availability of interviewees who could provide meaningful information on these programs. One program, the e-Launceston project was part of the Launceston Broadband Project, which was funded in equal amounts by the Australian Federal Government and Telstra. The Telstra B-eLab was also developed as a component of the Launceston Broadband Project. The other selected ICT Development Programs are the Tasmanian Electronic Commerce Centre, Business Development Fund, Intelligent Island Fund, and Computers in Schools.

The development of an emergent model of the relationships between the input factors and associated outcomes of regional ICT development programs is preliminary model

building that will provide the basis for further research, will increase understanding of the factors and phenomena involved, and assist in policy formulation for future funding programs.

This research seeks to address the following objectives:

- *To identify the relevant input factors, perceived outcomes and associated relationships, that characterise the impact of ICT development programs in regional Australia;*
- *To develop a preliminary model of these input factors and perceived outcomes, based on interviews with senior managers and other documentary evidence available on a selected range of nationally funded ICT development programs in Tasmania over the period 1996 to 2005.*

This research is exploratory in nature, and is intended to produce a preliminary model of the input factors and perceived outcomes of nationally funded ICT development programs in regional Australia. An extension of this research may then employ this preliminary model in a wider sample of regional ICT development programs, using quantitative analysis techniques to assess the validity of this model, and refine it.

1.5 Research Questions

This research is focussed on the following research questions:

RQ 1: What are the input factors and perceived outcomes in a selected range of nationally funded ICT development programs in Tasmania over the period 1996 to 2005?

RQ 2: What are the relationships between these input factors and perceived outcomes in this selected range of nationally funded ICT development programs in Tasmania over the period 1996 to 2005?

A further, practical question is implied by RQ2:

RQ 3: What are the implications of the findings of this research for policy and decision makers, and administrators of funded ICT development programs in regional Australia?

1.6 Research Methodology

This research methodology is based on a subjective ontology, with an interpretive epistemology, and the development of an emergent model, based on qualitative analysis techniques.

Eight interviews were conducted with seven senior managers who were involved in the decision-making and administration of nationally funded ICT development programs in Tasmania over the period 1996 to 2005. These semi-structured interviews were recorded, transcribed and analysed. Each interviewee was asked a series of questions that sought to uncover the nature of the decision making, planning, administration and assessment conducted of these ICT development programs.

The principal qualitative analysis technique used the development of causal analysis diagrams, based on the work of Miles and Huberman (1984b, 1994). At this stage minimal interpretation was employed, as the causal diagrams were developed directly from the transcript of the interviews. Hence each statement made by an interviewee was taken solely at face value, consistent with the interpretive nature of the research methodology.

These causal diagrams were then analysed further to identify the following:

- The input factors associated with the decision making, planning and administration of these ICT development programs;
- The perceived outcomes of these ICT development programs;
- The nature of the causal relationships present between these input factors and perceived outcomes.

A process of hierarchical aggregation was then employed to categorise these relationships and to develop core categories or major themes that characterise the nature of the relationships present in the data.

In addition, to the transcribed interviews, secondary sources of data were employed to elaborate and to provide further understanding of the issues associated with these ICT development programs. These secondary sources of data were typically minutes of meetings, interim and final reports, and relevant publicity that was produced during the period of time being considered.

Initially this analysis was conducted for each individual interview, using a within-case approach, based on Miles and Huberman (1984b, 1994). The analysis was then extended to all interviews, using cross-case analysis techniques of Miles and Huberman (1984b, 1994), to analyse the extent to which collaborative evidence could be identified for the existence of these core categories across the interviews.

1.7 Research Scope

The scope of this research program is limited by:

- The restriction of consideration of ICT development programs to those major programs that were nationally funded in Tasmania between 1996 and 2005 (see section 3.5.5: Selection of ICT Development Programs);
- The availability of key decision makers and administrators who were involved in the selected ICT development programs;
- The research methodology adopted, and the specific data analysis techniques employed, including the subjective ontology and data interpretation methods employed;
- The timeframe over which the data could be collected. For many of the interviewees, the events being discussed had elapsed up to eight years prior to the interview. For this reason other data, including contemporary publications, minutes and reports proved to be a valuable source of information.

Within an interpretative study, sample size and sample selection are not relevant issues. However, in this research program, consideration was given to identifying key senior staff who had been involved the selected ICT development programs. The researcher considers it very fortune that such key persons were available to be interviewed, and consented to provide frank and honest assessment of the ICT development programs. A total of nineteen persons were contacted to be involved in the study, and seven persons consented.

Semi-structured interviews were conducted in each case. A semi-structured questionnaire was employed to gather information about the interviewee's roles in the ICT development programs, their understanding of the intentions behind the programs and their assessment of the outcomes of the programs.

1.8 Significance of Research

A review of the literature suggested that a significant segment of the published material focussed on the development of quantified models that describe the costs and benefits of ICT funding programs. These models often deal with macro-economic issues, or employ simplified assumptions regarding the actual impact of such funding programs. This research seeks to develop a deeper understanding of the nature of the intended and actual impact of ICT funding programs.

The contribution that this thesis seeks to make to the theory and practice of Information Systems (IS) is in the area of understanding the nature and outcomes of publically funded ICT development programs in a regional context.

1.9 Structure of the Thesis

This section provides a summary of the chapters in this thesis.

Chapter 1: Introduction

The introductory chapter contains the background, research objectives, research questions and an overview of the research methodology of the research project.

Chapter 2: Literature Review

Chapter Two provides an overview of the body of literature that is relevant to regional ICT development programs. The key issues arising from the literature are presented and critically analysed. Limitations are identified in the existing literature, which are partly addressed by this thesis.

Chapter 3: Methodology

The research design and the methodology employed are presented in Chapter Three. The chapter addresses the distinction between quantitative and qualitative methods, and provides a justification of the ontological, epistemological and methodological stance used in this research.

Chapter 4: Interviews and Vignettes

Chapter Four describes the interview process and presents a chronology of relevant events associated with the selected ICT development programs over the period 1996 to 2005.

Chapter 5: Findings

Chapter Five presents the key findings of the thesis, based on the outcomes of the analysis in Chapter Four. These findings are presented at the level of individual interviews (within-case analysis) and across all of the interviews (cross-case analysis).

Chapter 6: Conclusions

The thesis is summarised in Chapter Six, with the key findings identified, and the contribution to the Information Systems discipline stated. Potential for further research in this area is also identified.

Chapter Two – Literature Review

2.1 Introduction

The following paragraph from Molnar articulates some of the contemporary issues of the late 1990s for rural and remote Australia. It also conveys an insight into ICT's 'white knight' role assigned to it by its promoters:

> Much has been written about the potential impact of new communication technologies and their ability to reduce the disadvantages experienced by Australians living in rural and remote areas. These technologies, we are told, will enable the delivery of a range of metropolitan services (such as telemedicine, education and e-commerce) to these areas. They will also stimulate the growth of rural and remote economies through the establishment of small-scale industries, thus reducing the drift of young Australians to the city. (Molnar, 1998, p. 5)

This chapter provides a window into the volume of published literature that had a relevance to regional ICT-related development programs during the 1996 to 2005 period. Key issues of the time such as the fear that Australia was going to be divided into technology haves and have-nots, often called the Digital Divide; problems associated with Tasmania's regionality and remoteness; the promises of ICT-related programs and how to measure their success or failure, skills shortages, industry and regional clusters, as well as the policies and programs to address these issues are addressed in this chapter.

2.2 Regionality

One major difficulty in approaching issues surrounding ICT-related regional development is the question of how best to define what is being identified by the often interchangeably used terms 'Regional', 'Rural', 'Remote', and 'the Bush' (ABS, 2001; Alloway, Gilbert, Gilbert, & Muspratt, 2004; Alston & Kent, 2006; Corcoran, Faggian, & McCann, 2010; Sher & Sher, 1994).

The following sections will discuss the ambiguity inherent in the use these terms, and examine how this has been approached by various relevant parties.

2.2.1 Regionality Definitions

Definitions of regional, rural and remote display a great deal of flexibility, and are at best confusing, and at worst contradictory (Sadler, 2008; Sher & Sher, 1994). The extent of this flexibility was demonstrated by the Australian Department of Finance and Administration (DFA) when it defined regional Australia as non-metropolitan Australia but for specialised proposals broadened its definition to include all metropolitan areas excluding Melbourne and Sydney (DFA, 2001).

The adoption of a single broad-based definition might be seen as the simple solution; however there is evidence that regardless of whether a single or multiple definition is used, both have the potential to facilitate disparate and dysfunctional policy formulation, with the resultant inconsistency of impacts as a result (Corcoran et al., 2010; Pezzini, 2001; RUPRI, 2001).

Many writers therefore avoid explicitly defining the place or region under discussion in terms of its regionality, for example, the National Office for the Information Economy (NOIE) (2000) report into 'E-Commerce Across Australia' used the terms region, metropolitan and non-metropolitan without definition. Australian authors in this field such as Coulthard (2001) and Coulthard, Castleman, and Hewett (2000) use the abbreviation 'R-3' to collectively represent rural, regional, and remote areas without distinction between the component areas or between R-3 and non-R-3 areas.

Luloff (1999) suggests that as with any conceptual definition, there are numerous ways that the term can be delineated and it may be that trying to provide a generic definition of regional Australia is likely to create as many problems as it resolves (Beer, Maude, & Bolam, 1994; Elvidge 1999; Foster, 2000). However, the Commonwealth Department of Health and Aged Care (2001b, p. 3) suggested that: "In order to systematically tailor services to meet the needs of Australians living in regional Australia, 'remoteness' … needs to be identified." Furthermore, in the continuing climate of competition for government funding, there is a need to unambiguously identify and contextualise the area(s) under investigation, and at the very least, facilitate the comparison of 'like for like' (MacLeod, 2001; McGrail & Humphreys, 2009).

The Australian Bureau of Statistics (ABS) in its response to users of statistical data requesting a standard classification for regional and remote Australia (ABS, 2001), developed the Australian Standard Geographic Classification (ASGC) Remoteness Structure (Trewin, 2006).

The Remoteness Structure is designed to categorise the ABS's Census Collection Districts (CDs) by their shared "… common characteristics of remoteness into broad geographical regions called Remoteness Areas (RAs)" (Trewin, 2006, p. 39). The ABS uses the distance from standard services and the opportunity for social interaction to group regions into five categories: major cities, inner regional, outer regional, remote, and very remote (Trewin, 2006).

Whilst there are those who have chosen to use the ABS's Remoteness Structure, for example, Corcoran, Faggian, and McCann (2010), others such as Arden; Cooper; McLachlan and Stebbings (2008) have not, instead choosing to provide a context for the area under research by using a rich description of the region and its circumstances. Others, such as Cripps and Salo (2009) continue to use the term without definition.

2.2.2 Tasmania as a Regional State of Australia

The site of this case study is the Australian state of Tasmania, and is defined by some as a regional area due to its small, dispersed population (Bound, 2007; Productivity Commission, 1999). Tasmania is an island state, located approximately 300 kilometres south of the mainland of Australia. As a state of the Commonwealth of Australia, Tasmania has a single statutory authority in its State Government.

All of the funding programs considered in this thesis were contained within the State of Tasmania, and many had state government agencies as components in the governance and administration of these programs.

2.2.3 Relative Significance of Regional Centres in Policy Formulation

There is little doubt that accurate definitions for regional development in policy formulation is of importance, and that the impact and challenges of issues such as the

global networked economy and the role of ICT magnify their significance (Pezzini, 2001; Ramirez, 2007; Singh et al., 2008). Nevertheless, this research does not proffer a solution to the lack of an official, consistently used definition of 'regional', however, it does recognise that its absence does compound the problem of consistent analysis when investigating the impact of ICT in these areas in general, and of government-funded ICT projects in particular. This was especially so for Tasmania where in 2005 the state population of 493,341 was a similar size to the greater Newcastle area (493,465) in New South Wales. The population of the capital city of Tasmania, Hobart, was 200,525 and smaller than the city of Wollongong (263,535) again in New South Wales. Further, a significant non-capital city area in Northern Tasmania, Launceston, had a population of 99,675, which was less than two thirds the size of a non-capital city of similar standing in Victoria, Geelong (160,991) (ABS, 2006).

2.2.4 Perception of Regions in Australia

Due to the low density of population across much of Australia, and the vast distances between population centres, the limited understanding of regionality, and the practicalities of the delivery of services to all parts of Australia play a significant role in the perception of the relative needs of the Australian population, the provision of service infrastructure, and in policy formulation, at both a state and national level. Approximately 85% of the Australia population live in coastal cities and towns (CoA, 2010), and have relatively little real experience of the true nature of the Australian landscape, variously referred to as the 'bush' or the 'outback' (Gorman-Murray, Darian-Smith, & Gibson, 2008).

Sher and Sher go further by concluding that:

> Even if rarely articulated, all Australian Governments have been influenced for decades by this "strong core, weak periphery" mental map of Australia. There is a long string of government initiatives - particularly in the realms of social and education policy-predicated on a deficit model of Australian rurality. In other words, the basic idea behind most social and education policies aimed at rural Australia is one of

> overcoming, or compensating for, numerous perceived forms of rural "disadvantage." (Sher & Sher, 1994, p. 7)

This can be seen within telecommunications in Australia which is bound by the Universal Service Obligation (Telstra, 2005) which ensures fair and equitable access to telephony for all Australians, regardless of location:

> The universal service obligation (USO) is the obligation placed on universal service providers to ensure that standard telephone services, payphones and prescribed carriage services are reasonably accessible to all people in Australia on an equitable basis, wherever they reside or carry on business. (ACMA, 2010)

Regardless of the driving causes, the continued significance of the issue of regionality is illustrated by the existence of the Department of Regional Australia, Regional Development and Local Government. As part of its 2011-2012 budget the Australian Government allocated AU$4.3 billion to its 'Regional Budget Package' (DRA, 2011).

2.2.5 Implications of Definitions for ICT programs in Tasmania

It is difficult to ascertain the precise impact the lack of consistence and comparable definition of regional has had on Tasmania, not least because, as Dollery and Soul, in a related field, note that it is "… surprising that comparatively little research effort has been focussed on the question of regional inequalities …" (2000, p. 3).

As indicated above by MacLeod (2001) and McGail and Humphreys (2009) in light of the competitive nature of attracting funding for government source, not being able to compare 'like for like' means that presentation and politics can play a greater role than otherwise would be expected (Rodgers-Bell, 2009).

2.3 Digital Divide

Digital divide is often simplistically defined as the gap between the technology haves and have-nots (Howell, 2001). According to The Institute for Ethics and Emerging Technologies, digital divide "… refers to the gap between people with effective access

to digital and information technology and those with very limited or no access at all" (IEET, 2010, para. 1).

However it is recognised that this is not simply a matter of having or not having ICT; equity, access, opportunity, skills, education, quality, and cost are among some of the other issues that help form the technological divide. A digital divide can exist between nations, states, regions, as well as within nations, states, regions, it can also be between urban and rural areas, and between suburbs or regions within metropolitan areas (IEET, 2010).

Further, Taylor, Zhu, Dekkers, and Marshall (2003a; 2003b) found there can be a substantial digital divide between the genders and age groups, the various levels of education and economic circumstances, and between the unemployed and employed. Taylor et al. (2003a; 2003b) not only detailed the divide in such terms as access and affordability, but they articulated the different uses and use patterns of the Internet by the different groups.

Some argue that the digital divide is as much about perception as it is about infrastructure (Howell, 2001), but even perceptions of a digital divide need to be addressed if meaningful participation in the digital world is to be achieved; be it trading in the global economy or 'chatting' online about social and community issues.

The term digital divide now appears to be avoided due to the emotive baggage that it carries. The National Telecommunications and Information Administration's (NTIA) first three reports, in a series titled 'Falling through the Net', used the term digital divide to convey "… the concept that the society should not be separated into information haves and information have nots …" (NTIA, 2000, p. xiii). However, in their fourth report of the series they use the term 'digital inclusion' to convey a sense of progress towards the goal of including 'everyone' in the digital economy (NTIA, 2000). In another report by the NTIA, "A nation online: How Americans are expanding their Internet use", the term digital divide is missing altogether. Instead they use softer terms

such as "the unconnected" (NTIA, 2002, p. 75) and "inequality … in computer and Internet use" (NTIA, 2002, p. 87).

2.3.1 Technical IT Infrastructure

Dewan and Riggins (2005, pp. 3-4) have characterised a digital divide as existing at multiple levels:

- Individual Level – those who are technologically, sociologically, or economically disadvantaged may lack or forgo access to ICT, creating a gap between themselves and those who choose to make ICT an integral part of their daily life. Indeed, there is considerable variation in access to technology across geographical areas; e.g., broadband Internet access is still sparse in many rural areas.
- Organisational Level – some organisations use ICT to gain advantage over their rivals and redefine the rules of engagement within their industry, while others lag behind as technological followers potentially putting themselves at a strategic disadvantage; and
- Global Level – while some countries are heavily invested in ICT and have adopted policies to promote corporate and individual adoption, other countries are being left behind technologically.

At the individual level a digital divide is characterised by issues of educational levels, and access to technological infrastructure. At the organisational level the existence of a digital divide has an effect upon the extent to which organisations can exploit ICT to achieve competitive advantages in the marketplace.

At the global level, and in the case of this research, the issues of the existence of a digital divide are characterised by the degree to which a viable ICT infrastructure exists, whether that infrastructure is developed by government, by private enterprise, and by joint ventures between government and private enterprise. The existence of a viable ICT infrastructure is a necessary pre-condition for a community to bridge a digital

divide and gain access to the technological tools. It therefore forms a fundamental economic component of the development of a technological-enabled society.

2.3.2 Equity of Access

Dewan and Riggins (2005) and Warschauer and Matuchniak (2010) characterise equity of access as a second order issue when considering aspects of a digital divide. While the provision of ICT infrastructure, appropriate levels of basic access to this technology, and sufficient levels of education to be able to employ the technology for useful tasks are first order, an essential aspects of ICT adoption, equity of access is a secondary issue which can be only be addressed when the first order issues have been at least partially resolved.

Equity of access to technology can be characterised to have historical, sociological and economic bases that extend well beyond the scope of individual ICT projects, or government driven ICT policies (Watson & Mulvihill, 2010). Hence, once the first order issues have been addressed, equity of access becomes primarily a social issue, based on cultural attitudes, availability of time, ability to prioritise tasks, and access to the necessary resources required to travel or otherwise gain access to the technology.

2.3.3 Education, Training and Existence of Social Support Networks

As discussed in Section 2.3.2, education and training is a necessary, first order component of ICT adoption in a community. However, basic knowledge is insufficient as the technology changes, and social trends in the forms of communication, ICT terminology and modes of access are constantly changing. In order for access to the technology to be sustained, individuals require a supportive network, through which they can be constantly informed on these changes, acquire new skills and knowledge, and make informed decisions about the most appropriate modes of communication and use of the technology. This area has been most actively pursued in the area of library services (Gould & Gomez, 2010). Gould and Gomez (2010) note that public libraries have needed to provide supportive advice on the adoption and enhancement of ICT skills, across an increasingly wide range of technologies and modes of communication, and have also needed to encourage, mentor and host support networks of their users in

order to cope with the demand for these services. In addition, public libraries have become a key means through which policy makers in government learn about community trends with regard to access and use of public ICT infrastructure, so that libraries need to maintain multiple channels of communication on matters related to community use of ICT, both up and down their supply chains.

2.3.4 ICT-related Skills

The digital divide not only relates to the access of ICT, but also to the ICT skills needed to develop, maintain, and use the physical ICT infrastructure. The skills needed are wide ranging, for example: network management, website administration, security management, systems analysis, software development, and project management (Johansson, 2006; Karlsson et al., 2010).

The significance of this is articulated by Karlson et al. (2010) who point to the trend of siting industry based on the traditional access to raw materials, transport, and low-cost labour diminishing while having access to particular skills, knowledge and ICT infrastructure is taking on a greater significance.

There is a broad consensus that if not addressed, the shortage of appropriate ICT skills can act as an inhibitor to regional and industry growth as well as having the potential to isolate sections of the community as information becomes increasingly available exclusively online (DCITA, 2006; Deloitte, 2007; Union, 2002).

2.3.5 Digital Inclusion

The concept of digital inclusion is meant to apply to those members of society who are able to access public ICT infrastructure and derive the benefits of such access. Where digital inclusion is applied at a whole of society or whole of community level, it is a concept that is used to address the issues faced by the digitally excluded, who are marginalised in society because of their limitations or inabilities in accessing this technology (Helsper, 2008).

Digital Inclusion is characterised as incorporating the concepts of:

- Having access to public ICT infrastructure, through availability of facilities and public policies that facilitate such access;
- Having the ability to make productive use of this public ICT infrastructure;
- Being empowered to use this public ICT infrastructure through education and training;
- Engaging in active participation through use of the public ICT infrastructure (Selwyn & Facer, 2007).

2.3.6 ICT Governance

The area of ICT governance has advanced rapidly over the past decade, with increasing sophistication and adoption of ICT governance frameworks, such as COBIT and ITIL-SM (Weill & Ross, 2004). At the time of this study these frameworks were not widely adopted within regional ICT projects. In the Tasmanian Government context, project management governance frameworks, largely based on PMBOK (PMI, 2013), were well developed, and in the late 1990s the Tasmanian Government was a national and international leader in the adoption of ICT governance in the area of project management.

Gianluca, Giuseppe, and Gianluig (2011) report that the three main value drivers that form the basis of measurement of attaining good ICT governance are:

- Performance: effectiveness and efficiency (enabling optimal use of resources for citizens and tax payers in the service delivery); and also, indirectly, responsiveness (serving all citizens in a consistent and predictable way).
- Openness: access to information as a proxy for participation (enabling the empowerment of citizens so that they can legally control service delivery to their advantage) and transparency (bringing visibility to citizens of the service workflow by means of automated service delivery); and accountability (creating standards against which the individuals providing a service and the service

delivery can be held accountable), that also serves the goal of ensuring consensus orientation (following democratic practices).

- Inclusion: equity and inclusiveness (referring to citizens receiving a service on an equal basis and providing services to disadvantaged and minority groups), which implicitly ensures respect for the rule of law (ensuring that laws and regulations governing the service are applied impartially).

2.3.7 Social Good

Throughout human history technology has influenced and changed society (Castells, 2000; Cowan, 1976), however, the advent of ICT has accelerated the rate of change (Morales-Gómez & Melesse, 1998; Wajcman, 2008).

The potential of the changes brought about by ICT and the expectation that the change would be of benefit to society was articulated in the following statement by the former Secretary-General of United Nations, Kofi Annan; "If harnessed and directed properly, Information Communications Technology (ICT) have the potential to improve all aspects of our social, economic and cultural life" (Annan, 2003, para. 1).

Within this context the term 'social good' is often used (Clark, 2003; Longford, 2008), which Tibben (2007, p. 5) states "… gives voice to the idea that communications technology delivers a dividend to society because individuals are better informed and better able to participate in the economic and social life of communities." While Accascina (2000) describes social good as a measurable outcome of investment in ICT. As far back as 1989 Braman urged analysts and policy-makers alike to accept that a relationship existed "... even while the debate over the relationship between technology and society continues" (1989, pp. 233-234).

2.4 Clusters and ICT Precincts

Two terms commonly associated with regional development are Clusters and ICT Precincts. Although these two terms are sometimes used interchangeably, the term cluster is defined as:

> … geographic concentrations of interconnected companies, specialised suppliers, service providers, firms in related industries, and associated institutions (e.g., universities, standards agencies, trade associations) in a particular field that compete but also cooperate. (Porter, 2000, p. 15)

The term precinct, although in wide use in press releases and promotional literature, is not clearly defined (ACT, 2003; Logan, 2008). It appears to draw on the broader definition of precinct as "an area in a town designated for specific or restricted use, especially one which is closed to traffic" (Oxford University Press, 2012, para. 2) with the prefix used to indicate its primary purpose (Rossi, 2008; SIA, 2008). Whilst the term ICT Precinct is often used to refer to an area that may contain a cluster or be the focal point of a cluster, Porter's definition of the geographical scope of a cluster is much broader and relates "… to the distance over which informational, transactional, incentive, and other efficiencies occur." (Porter, 2000, p. 18). Further Porter warns that "overly restrictive or overly extensive definitions of clusters can obscure the influence of clustering …" (2000, p. 33).

Although the use of the term ICT Precinct has at times seemed to fade from favour, it is still being used. For example 'ICT Geelong', in Geelong, Victoria, aims to be "… a major Victorian ICT precinct" (ICT Geelong, 2011, para. 1), and the University of Technology, Sydney recently supported the NSW State Government's 'Digital Economy: Industry Action Plan' by suggesting the creation of a 'Creative ICT Precinct' (Milbourne, 2011).

2.4.1 Potential Benefits of Industry Clusters

Porter (1990) sees that a well-conceived and developed industry cluster can deliver many economic benefits. The major three are, 1) increased productivity of the companies within the area, 2) increased innovation, and 3) the stimulation of new businesses (Porter, 1990, 1998). In addition he also sees clusters as providing a focal point for attracting international investment by providing a greater mass of coherent companies with related business goals. Similarly, Malmberg and Maskell (2002) see a major benefit of clustering as the ability of sharing the cost of collective resource and

infrastructure. Further they see the benefits extending to the labour market from which the needs of the industries within the cluster can draw.

2.4.2 Cluster Policy

Enright and Roberts (2001) noted that interest in clusters and their role in regional economic development led to a growth in cluster-based economic development policies being adopted by governments all around the world. The main reason for this was the increased intensity of interregional and international competition in the world economy, the apparent shortcomings of traditional regional development models and policies, and the emergence of successful clusters of firms and industries in many nations around the world (Enright, 2001; Enright & Roberts, 2001).

Cluster policy is essentially an economic policy not focused on individual companies, but companies in their value chain and their value-adding environment. Cluster policy instruments can range from altering general framework conditions (regulations, research facilities, education) for a particular cluster to a more hands-on public brokerage role to bring a number of companies together for collaboration.

All have in common a view that improving competitiveness or increasing innovation is an interactive process between firms and their environment. Cluster policy is about stimulating the links to that environment through public-private dialogues, defining joint research needs, co-development between contractors and suppliers and so on (Boekholt & Thuriaux, 2000).

It is interesting to note that governments with widely different ideologies and philosophies have instituted cluster promotion policies. In the United States, conservative states, liberal states, and states in-between have adopted cluster-based strategies. In Canada, the most interventionist (the Atlantic Provinces and Quebec) and least interventionist (Alberta and British Columbia) provinces have done the same. Cluster-based strategies are being employed in Europe by governments across the spectrum from left to right and right to left. In the Asia-Pacific, national or local governments in such diverse places as Australia, New Zealand, Malaysia, and

Singapore have adopted cluster development strategies. With such different governments all adopting cluster-based strategies, it is not surprising that 'cluster development' can mean very different things in different places.

Cluster initiatives can also differ in terms of the level of government that is involved. In large developed economies, local or regional governments have driven most of the cluster initiatives that have operated in the last few years. This is based on the belief that local responsiveness requires a local presence and to the devolution of policies.

2.4.3 Government Intervention

As with almost all industry and business development strategies, there appears to be no one template or perfect model for developing a cluster strategy (Enright, 2001; Enright & Roberts, 2001). Different governments use a variety of intervention strategies to develop, promote, and foster clusters, these include:

- Non-existent, where there are no cluster-based policies.
- Catalytic, where the government tries to bring interested parties together, but provides limited support or direction. Government takes an indirect role by encouraging private sector efforts.
- Supportive, where *catalytic* plus making cluster-specific investments in infrastructure, education, training, or providing passive promotional support.
- Directive, where *supportive* plus either government using cluster programs to reshape the local economic structure, or the presence of fairly directive targeting programs.
- Interventionist, where *directive* plus either government making the major decisions about the evolution of the cluster rather than the private sector, or using active means, such as substantial subsidies, targeted attraction incentives, protection or regulations to develop the cluster, or significant government ownership and control in the cluster. (Enright, 2001, p. 16)

It should also be noted that further to providing initiatives, a key finding of research across seven European Regions that are developing clusters, undertaken by Philip

Raines of the University of Strathclyde (Dec., 2000), was that 'Policy supporting clustering is as important as policy on developing clusters' (SABV2010, 2000).

2.4.4 Lessons from Overseas Experience

In his review of South Australia's BV2010 Industry Cluster Program, Professor Richard Blandy, of the University of South Australia, outlined a number of lessons to be drawn from other places' experience and lists some of the Organisation for Economic Co-operation and Development (OECD)'s lessons from its World Congress in Paris in 2001:

- Regional clusters are founded on synergies between local firms and institutions. Local actors in clusters are linked through various pacts, contracts and relationships, involving a mix of competition and collaboration. Policy for supporting clusters and governance frameworks should therefore involve local actors when it comes to design and implementation of strategies and programs:
- All clusters are different. The clusters we see today are the result of a process of historical development specific to each cluster. Local productive systems are different in their areas of specialisation, labour markets, environments, networks and states of maturity for example and each has its own gaps and opportunities to address.
- Different clusters must therefore develop and implement their own strategies and interventions and governance frameworks should be tailored to their local circumstances. In all cases, however, according to the OECD, policy should seek partnership and participation.
- Public policy in clusters must be designed through collaboration, involving local firms, institutions and citizens in the development of the strategy and actions. We must recognise that all people in the territory are stakeholders who are affected by the development of the cluster. Mechanisms are therefore needed so that they are given the opportunity to be involved in decisions about it. (Blandy, 2001)

2.4.5 Summary of Discussion of Cluster Development

Cluster policies are being implemented successfully right around the world as a means of stimulating economic and regional growth. These policies have potential to drive the revitalisation of the local economy, however, while there are a number of generic measures, there is no 'magic formula'.

Policies need to be developed that fully exploit the potential of the local region – promoting its strengths and overcoming its weaknesses, borrowing from successful developments and learning from the failures.

Experience from around the world indicates that support from all levels of government is required, particularly in the formation of long-term policy and support measures. Further, experience also indicates that governments do not develop successful clusters in isolation; all stakeholders, including the wider community, need to be involved in both policy development and implementation. If planned and managed correctly, a cluster development can secure the benefits offered by the emerging globalised marketplace, for the region.

2.5 Governance of Regional ICT Development Programs

Despite the difficulties of defining 'regional' that have been considered elsewhere (Steer & Turner, 2004), it is evident that the overall trends of slower industrial growth, decreasing rural populations and the emergence of issues associated with the adequacy and/or affordability of telecommunications are very much a part of the everyday experience of the information economy for many Australians in regional areas, outside of the main metropolitan zones (DCITA, 2002).

In this context, it is not surprising that there has been considerable support for the deployment of ICTs as a mechanism to revitalise regional Australia. However, while ICTs clearly have the potential to connect regional Australia to the world, their impacts have been far from uniform and not always beneficial. ICTs and in particular eCommerce "… raises the possible outcome of increased market share and dominance

of large urban based companies in regional areas rather than the promised expansion of regionally based companies outside their regions" (Coulthard, 2001, p. 420).

The lack of uniformity of benefits is indicative of the fact that the implementation of ICTs are highly differential, depending on existing local regulatory, economic, and social infrastructure context, and that in turn re-emphasises the importance of an assessment of the unique characteristics and circumstances of individual regional areas (Hearn et al., 2005). From a different but complementary perspective Lloyd and Hellwig (2000, p. 34) have highlighted how socio-demographic factors are also extremely influential in relation to determining the extent to which Australians use ICTs and participate in the information economy. Both perspectives highlight how both regional and individual differences are central to determining the outcomes of the development of ICTs infrastructure.

More broadly, it is interesting to consider the perspective of Hicks and Nivin (2000) who, in examining the huge US investment in ICTs during the 1980s, researched the difficulty of finding consistent evidence of measurable impacts of these investments on overall US economic performance. Hicks and Nivin found that when this ICT investment was assessed in isolation there was "no evidence of IT-induced income gains …" (2000, p. 115), rather, there was significant evidence to suggest that a 'marked geographical concentration of IT investment' underscored the existence of the strong localisation effects of ICT impacts. Simpson (2001) also noted that the majority of ICT-related economic growth in the US was centralised in the relatively small locations of Silicon Valley and Seattle (Microsoft's and Amazon.com's headquarters).

The ICT-related investment and the deployment of ICTs has, and is, having an impact on regional development. While ICTs can connect a region to the global economy, they also expose the region to global competition and the associated socio-economic uncertainties of globalisation. What remains unclear is the extent to which this net impact will be positive (Coulthard, 2001; Wilde et al., 2000). More seriously, within the current conceptualisation of the issues there is no way of meaningfully assessing

whether the introduction of ICTs will mitigate, exacerbate or simply replicate the pre-existing urban/regional divide (Steer & Turner, 2004).

ICT Governance is a subset of Corporate Governance and is focused on ICT systems and their performance and risk management.

Standards Australia's Corporate Governance of Information and Communication Technology standard (AS8015-2005), states that the "standard provides a framework for good governance of ICT, to assist those at the highest level of organisations to understand and fulfil their obligations", and provides definitions, principles and a model (Standards Australia, 2005, p. 2).

The Standard is designed to be used in all organisations, "including public and private companies, government entities, and not-for-profit organisations" (Standards Australia, 2005).

The Standard aims to promote effective, efficient, and acceptable use of ICT by:

a) providing stakeholders (including consumers, shareholders, and employees) with the confidence that, if the Standard is followed, they can trust in the organisation's corporate governance of ICT;

b) informing and guiding Directors in governing the use of ICT in their organisation; and

c) providing a basis for objective evaluation of the corporate governance of ICT. (Standards Australia, 2005, p. 4)

2.6 Conclusions

The review of the literature investigating the potential impact of ICTs on economic development revealed that much has been promised of ICTs in terms of delivering economic growth. However, it was also identified that the literature is primarily focused towards urban development. The literature also revealed a digital divide has developed due to uneven availability and uptake of ICTs, with non-urban areas often being 'left

behind' the urban areas. It was also seen that there were significant issue associated with Tasmania, as a regional state, in terms of its ICT infrastructure and its access to the potential benefits ICTs could generate.

Further, it was seen that there are many facets to providing and supporting ICT infrastructure, and there are many Government led and / or funded initiatives, programs and policies that have and can be used to mitigate the ICT-related issues around availability and uptake within regional areas.

Chapter Three – Methodology

3.1 Introduction

This chapter presents the research philosophy, research strategy, research design including data collection techniques, analysis and data interpretation and discussion. The distinction between quantitative and qualitative methods will also be addressed, providing the opportunity to justify the ontological, epistemological and methodological stance used in this research. The qualitative data analysis techniques put forward by Miles and Huberman (1994) have formed the basis of the research approach of this thesis.

3.2 Research Philosophy

Research is founded on a principal belief regarding what forms 'valid' research, and which methods of research are appropriate (Myers, 1997). It is therefore crucial that prior to the commencement of research, the researcher affirms their philosophical position according to their ontological and epistemological stances (Neuman, 2011; Remenyi & Williams, 1996).

The most significant philosophical assumptions are those that relate to the fundamental epistemology supporting the research. The theories about knowledge and how the knowledge can be acquired is referred to as Epistemology (Myers, 1997). This section discusses and justifies the philosophical stance adopted by the researcher. There are multiple approaches to the conduct of research, including interpretivism, positivism, critical research and post-modern (Hirschheim & Klein, 1989; Neuman, 2011).

3.2.1 Ontology

In studying social phenomena, the researcher is faced with the basic ontological question; how does the 'reality' exist in relation to the individual? The answer determines whether the reality is of an objective or subjective nature (Burrell & Morgan, 1977). The broad alternatives for determining an ontological approach are objectivism and subjectivism. These contrasting viewpoints can have considerable impact on an investigator view of humanity within the framework of their research (Orlikowski & Baroudi, 1991).

Subjectivist research is derived from the point of view of those who are experiencing it and the stance that reality is not unambiguous. A characteristic of the subjective ontology is that it may have many contrasting perspectives (Creswell, 1998). Essentially, everyone builds their own view of reality. Consequently this perspective implies the possibility of contradictory understandings of the same events as each individual sees their actions and interactions from their own perspective (Darke, Shanks, & Broadbent, 1998). Within a subjective ontology the focus is on the individual, and the manner in which they make sense of their reality, and their experiences and beliefs are guided by these perceptions of their reality (Denzin & Lincoln, 2003).

Objectivist research assumes the position that there exists only one authentic reality, and therefore exists regardless of the individuals who make up that reality. Underpinning objectivism is the understanding that natural laws are driving the objective reality, and that by applying a set of rigorous research methodologies, these laws can be uncovered (Guba, 1990).

The key objective of this research is to gain insight into the perceptions, motivations and actions of key people involved in the implementation publically funded ICT-related programs within Tasmania during the period of 1996 to 2005 by extracting data interpretively from a series of distinct interviews. Such an approach necessitates an interpretive epistemology, based upon a subjective ontology (Burrell & Morgan, 1977).

3.2.2 Epistemology

Epistemology is the discipline of knowledge acquisition, or the philosophical way that data are collected and given meaning (Hirschheim & Klein, 1989). It can be considered therefore as the philosophy and assumptions that influence the style of knowledge attainment and formation (Burrell & Morgan, 1977; Hirschheim, 1992; Hirschheim & Klein, 1989; Neuman, 2011).

Prior to the commencement of any research, the researcher must evaluate their understanding about the nature of reality and knowledge. These beliefs affect the

selection of the method suitable for research (Guba & Lincoln, 1994). Guba and Lincoln (1994) suggest there are four fundamental 'paradigms' for qualitative research: positivism (Guba & Lincoln, 1994), interpretivism (Orlikowski & Baroudi, 1991), critical social science (Guba & Lincoln, 1989), and constructivism (Gillett, 1998). The chosen epistemological stance of this research thesis is interpretivist. The positivist, interpretivist and post-positivist approaches to epistemology are briefly discussed in the following sections.

3.2.2.1 Interpretivist Epistemology

Interpretivist researchers consider that phenomena should be considered subjectively and not deconstructed into smaller segments for study. The interpretivist researcher accepts that it is people's interactions within a given situation that are fundamental to the research (Orlikowski & Baroudi, 1991). Interpretivist researchers believe that "knowledge and meaning are acts of interpretation, hence there is no objective knowledge which is independent of thinking, reasoning humans" (Phillips, 1990, p. 8).

Subjectivity is the foundational ontological perspective of the interpretivist. Epistemological assumptions supported by this paradigm are based on the understanding that there exist multiple relativities and realities. Interpretive researchers concentrate on the difficult task of making sense of the interaction between human beings as a situation develops. The challenge for these researchers is to comprehend the phenomena via the meaning the people involved have assigned them. Comprehension of shared reality involves drawing theories from the field by exhaustive examination of the relevant phenomenon. Within the IS Community interpretive methods of research are designed to construct an understanding of the system within its given context, as well as the processes by which the system is influenced and influences (Patomaki, 2000). Interpretivism accentuates the understanding of reality, which is a product of social interaction, and consequently it is necessary that it be viewed from the perspective of the social actors involved, including the researcher (Orlikowski & Baroudi, 1991).

3.2.2.2 Positivist Epistemology

Neuman (2011) and Orlikowski and Baroudi (1991) are amongst the authors who have acknowledged that the positivist paradigm has been the foremost approach used in the discipline of Information Systems. Positivism is premised on scientific theory, with the understanding that an empirical study can be used to disprove theories. Positivism has an emphasis on experimental scientific observations to explain and test cause-effect relationships of an event (Creswell, 1998; Neuman, 2011). The positivist methodology emphasises the use of investigational observations to test and describe the cause-effect associations of a phenomenon. From the positivist point of view, scientific theory strives to explain or falsify the propositions of an existing hypothesis. The positivists' base units are facts, and facts are equated to things that can be observed, which suggest that phenomena can be observed, explained and measured in quantifiable expressions. Positivism views the world as having universal laws and truths that can be used to predict and explain events and behaviours. The elimination of subjectivity, opinion and judgement is the aim of the paradigm. It is seen therefore as a suitable paradigm where there are formal propositions, variables that can be quantified and the capability to derive inferences about a population from a subset the whole (Orlikowski & Baroudi, 1991).

The epistemological assumptions of the positivist are built on the quest for realism via empirically testing theories founded on hypothetic deduction (Phillips & Burbules, 2000). Hypothetic-deduction's use permits testing for statistical generalisation, where the findings can be judged to be true (Guba & Lincoln, 1994). Two of the primary techniques of data collection are sample surveys and experiments that are outcome-oriented and accept as true natural mechanisms and laws. Within positivism data collection is undertaken with the researcher considered as being removed from the situation being investigated, and operates as the procurer of data, discovering what is considered to be the undeniable truth (Racher & Robinson, 2002).

However, the positivist philosophy has been criticised for failing to take into account the potential influence that contextual and historical circumstances may have on social interaction and human actions. That is to say, in adopting the positivist viewpoint the

researcher's understanding of the actions of the research subject may not be complete given that they disregard the contextual conditions (Orlikowski & Baroudi, 1991). Further, the positivist position applies research methods that promote a deterministic account of the phenomenon, though often simultaneously still searching for a causal description of the situation (Orlikowski & Baroudi, 1991).

3.2.2.3 Post-positivist Epistemology

The development of an alternative perspective named post-positivism was the outcome of the perceived shortcomings of positivism (Benbasat, Goldstein, & Mead, 1987; Racher & Robinson, 2002). Post-positivist epistemology acknowledges that the positivist stance of recognising only observed and measured knowledge would result in rendering many significant facets of sociology extraneous as beliefs, perceptions, and feelings, are not be easily measurable. Acquiring knowledge is regarded by the post-positivist epistemology as more significant than simple deduction, and that it is attained through the processes of induction and deduction (Gephart, 1999).

3.3 Research Approach

Consistent with the interpretivist and subjectivist stance within this research, the researcher has adopted a qualitative approach to the analysis of data. The nature of the data gathered is the spoken language that was recorded and transcribed. The method of analysis used in this research is a two part process that was derived from the work of Miles and Huberman (1994). The initial data analysis was conducted within each case, and was especially useful in revealing issues and relationships. It also assisted in commencing the process of interpretation and developing viable explanations. A cross-case analysis, which was also based on the work of Miles and Huberman (1994), formed the second stage of the analysis. Similarities between the seven cases were uncovered during the process of making the comparisons.

3.3.1 Qualitative versus Quantitative

Neuman (2011) notes that while quantitative and qualitative research appear to be at odds with each other, they do have the potential to be complementary to one another. Social researchers all aim to recognise and explain social life by methodically

gathering, analysing and exploring data. Historically, quantitative research techniques were developed within the natural sciences to investigate natural phenomena, where the researcher is driven by the issues of measurement, sampling, and design, and where there is an emphasis on comprehensive planning before commencement of data collection and analysis (Myers, 1997).

Within social sciences qualitative research is undertaken to study cultural and social interactions, taking into consideration the researcher's thoughts and feelings. Motivation for conducting qualitative research is derived from the observation that a distinguishable feature of humans is their capacity to communicate through speech (Myers, 1997).

Qualitative researchers focus on the issues of texture and richness contained within the raw data, concentrating on relationships between the data and developing insights and theoretical frameworks. Kaplan and Maxwell (1994) consider that when researchers attempt to understand a phenomenon from the participant's perspective within a specific social and institutional framework, its meaning is essentially lost through the process of quantifying the textual data.

3.3.2 Choice of Analysis and Data Collection

Eisner and Peshkin (1990), Guba and Lincoln (1994), and Myers (1997) suggest that qualitative analysts assign a higher priority on the interpretation of events and phenomena while the interpretation of measurements receives a lesser priority. Research questions in qualitative analysis-based studies seek to discover patterns of relationships between the key issues, and are characteristically orientated towards the investigation of cases or phenomena. Further, qualitative research involves reflection upon the data where the researcher is seeking to comprehend the deeper meaning of the data and focuses upon interpretative understandings of this data.

This research project seeks to gain a deep understanding of the perceptions, motivations and actions of the key people who were involved in establishing and administering publically funded ICT-related programs within Tasmania during the period 1996 to

2005, and as indicated above, the research approach is interpretative. A qualitative analysis approach was assessed as being best suited to meet the research objectives. To take advantage of the availability of key people involved in the project, face-to-face interviews, with their ability to ask in-depth questions that seek both fact and opinion, were determined to be the best approach to gather data from a selected number of these key people.

The epistemology and consequent data analysis approach taken in this research is based on common sense or naïve realism (Madill, Jordan, & Shirley, 2000), namely that there are commonly agreed fundamentals of reality, such as the existence of self and of tangible objects, but that questions of existence and nature of non-tangible objects are subject to individual interpretation. While the data analysis employs the use of causal diagrams to interpret the data, the researcher is not adopting a causal realism (Esfeld, 2011) stance, namely that the existence of objects can be traced back to identifiable principles of cause and effect. In this research the causal relationships are derived from the perceptions of the interviewees, and are grounded in the data that has been gathered through interviews. These causal relationships are based on the perceptions of the interviewees, and are not questioned or verified by the researcher. This approach is consistent with subjective ontology, and interpretivist epistemology, based on common sense reality.

3.3.3 Case Study Research

A widely used research strategy for the collection of data in the Information Systems field is the case study (Benbasat et al., 1987; Marzanah, 2007), and is the most popular qualitative method used for the investigation of the Information Systems discipline according to Alavi and Carlson (1992) and Darke et al. (1998). Benbasat et al. (1987) believe that this approach permits the researcher to resolve why and how questions that can add to the researcher's comprehension of the character and complexities of the phenomenon.

Yin (1994) states that the case study is an empirical investigation that considers the real-life context of a contemporary phenomenon, and Benbasat et al. (1987) view this

research approach as appropriate for developing theories based on the knowledge and perceptions captured from the practitioners. Hammersley (1992), when comparing surveys to case studies, states that there is a greater scope for accuracy when using the case study techniques than with the survey techniques. Case study techniques can allow the use of various types and sources of data to determine the accuracy of the significant claims. The ability of case study techniques to be used in the investigation of the phenomenon within its context, and well as its capacity to study closely its numerous diverse facets, is viewed as one of its strengths by Cavaye (1996) and Marzanah (2007).

Authors including Miles and Huberman (1994) and Cho and Trent (2006) have recognised that within the Information Systems discipline increased rigour in researching case studies using qualitative methodologies is essential. The significant of rigour, validity, reliability, and trustworthiness have progressively increased within the qualitative methodology (Cho & Trent, 2006; Denzin & Lincoln, 2003) Morse et al. (2002) state that without rigour, research has no value, and this is echoed by Adler and Adler (1994), and Denzin and Lincoln (2000, 2003) who assert that evaluation of the reliability of qualitative studies is often linked to the perceived assessment of its transferability, integrity, and reliability.

Miles and Huberman (1994, p. 25) put forward the definition of a case as "… a phenomenon of some sort in a bounded context", and this is echoed by Flyvbjerg (2011, p. 301) in his statement that the "… drawing of boundaries for the individual unit of study decides what gets to count as case and what becomes context to the case." Using these definitions, each of the seven individual interviewees are regarded as having separate or bounded views of the ICT-related initiatives and development programs, and as such are each treated as a case study within this multiple case study research.

3.3.4 Validity and Reliability

Validity can be broadly characterised as pertaining to the connection between a phenomenon and something external to the phenomenon (Maxwell, 2002). Validity in research, according to Mentzer and Flint (1997), can be thought of as a hierarchy of actions that enable the researcher to have a high degree of confidence in their findings.

Content Validity

Content validity relates to the extent to which coding and interpretation of source text accurately reflect the theoretical domain of the constructs which these codes purport to be representing. When valid, such codes accurately represent the underlying construct in the source text, and become surrogates that can be meaningfully employed in the subsequent analysis. In this research content validity has been strengthened by inter-coder reliability testing (Kurasaki, 2000), between the researcher and his supervisor. This measure of reliability was established by each coder considering the same fragment of source text, coding that text, and then discussing the outcomes of the coding process until a degree of consensus had been achieved. This was repeated on several diverse fragments from different sources, and from different modes of capture. This testing was performed early in the analysis phase of the project, so that the coding principles and processes could be employed by the researcher throughout the project. Near the end of the coding phase of the project a further check was made on the consistency of the output of the coding by the researcher and one of his supervisors.

Construct and Criterion Validity

Construct validity deals with the validity of quantitative measures used in the testing of hypotheses, and so is not relevant to this interpretive study. Similarly, criterion validity deals with the ability to deduce accurate interpretations from the output of quantitative analysis, and so is not relevant to this interpretive study (Burstein & Gregor, 1999; Thompson, 1990).

Consequential Validity

Consequential validity relates to the ability to draw accurate interpretations from the source data, in the context of the case study, and consistent with the cultural norms and beliefs of the participants. In this study consequential validity of the analysis process has been strengthened by:

- rigorous use of grounded data to support all coding and interpretation of the source text. The source text has also been used to support selective coding to ensure that the output of the coding and analysis process is consistent with the

grounded data and the researcher's interpretations of the intents of the participants during the recorded interviews;

- participant validation (Moilanen, 2000). In one case, participant X, was asked to review the output of the coding and analysis process, and express an opinion as to the consequential validity of this analysis. When this was conducted, participant X identified a number of factual inaccuracies or ambiguities in the output of the coded data, some of which were due to misreadings of the original source text, but did not disagree with the essential findings of the analysis.

Internal Validity

Internal validity (Yin, 2003) is concerned with the validity of causal relationships that have been derived from the source data, and with the validity of inferences made on the basis of these causal relationships. In this study all causal relationships that are derived from the source text are grounded in that source text, either as an *in situ* statement by the participant, or as a direct consequence of statement made by the participant. This is part of the rigorous application of an interpretive approach to coding in which the research treats the causal relationships stated by the participant *verbatim*, without the need for subjective interpretation by the researcher. Further, this adherence to internal validity was assessed in the testing of inter-coder reliability, discussed above under Content Validity.

External Validity

External validity (Yin, 2003) relates to the extent to which the findings of the study are generalisable beyond the scope of study. In this case no claims are made to such generalisation beyond the scope of the case studies, and the content of the interview material gathered as part of that case. However, the reader may engage in naturalistic generalisation (Robinson & Norris, 2001), based on their knowledge of the area, experience, and depth of interpretation of the results and findings of the study.

The external validity of the thesis is enhanced by the inclusion of vignettes that deal with the historical narrative of the relevant events over the period of the study. These vignettes have been assembled from the factual information provided by the

participants, and by reference to publically available sources, such as the Tasmanian State archives, Hansard of the Federal Government of Australia, and archived content on State and Federal Government websites. These vignettes have been written to provide the reader with a time line of the events being considered, to provide a contextual overview of these events, and to provide greater validity of the factual basis of many of the events being discussed by the participants. The rigorous grounded nature of the analysis of the source data seeks to retain the external validity of this data by frequent reference to textual fragments from the source data, and by the use of selective coding based on this source data.

Reliability

The aim of enhancing the reliability of a research project is the reduction of errors and biases in data analysis and interpretation phases of the research, and this is able to be achieved by detailed reporting on the conduct of the case research in a manner that would permit an investigator to duplication the procedures and realistically be expected to arrive at similar findings (Boudreau, Gefen, & Straub, 2001; Straub, Boudreau, & Gefen, 2004). The case study researcher, according to Benbasat et al. (1987) is obliged to provide comprehensive descriptions of where their investigations fit into the processes of building knowledge. Further, they suggest the case selection criteria and the process of data collection needs to be described and justified.

Patton (1999) suggests that there is an implicit obligation placed on the qualitative researcher to be methodical by reporting sufficient details of the processes used in data collection, so as to enable others to verify the validity, reliability and quality of the resulting work.

Vignettes

The establishment of external and contextual validity can be achieved through the use of vignettes (Boudreau et al., 2001; King, Murray, Salomon, & Tandon, 2004; Straub et al., 2004). Miles and Huberman describe vignettes as being "… a focused description of a series of events taken to be representative, typical, or emblematic in the case …"

and "… has a narrative, story-like structure that preserves chronological flow …" (1994, p. 81).

Further Eisenhardt & Graebner suggest that:

> … presenting a relatively complete and unbroken narrative of each case is infeasible for multiple-case research … . If the researcher relates the narrative of each case, then the theory is lost and the text balloons. So the challenge in multiple-case research is to stay within spatial constraints while also conveying both the emergent theory that is the research objective and the rich empirical evidence that supports the theory. (2007, p. 29)

This research uses two short vignettes: a constructed narrative of the events surrounding the sale of Telstra over the period from 1996 to 2005, and a narrative constructed from the transcript of one of the interviews that provides their insights into the development of the Tasmanian ICT Programs during the 1992 to 2005 period. The contents of this vignette have been verified with the interviewee.

The vignettes:

- Provide the reader with a time-line along which they can locate and understand the sequencing of these events;
- Provide context of the research for the subsequent discussion of data gathered through the interviews of key personnel who had been involved in these events. In some cases the involvement of the interviewees, and the information that they provided, and is evident through the analysis, assumes a context which needs to be made explicit in the narrative presented in the following sections;
- Provide further background on the interrelationships that were present between these funded ICT-related initiatives, and which are relevant to interpreting the content of the interviews.

3.4 Ethics Compliance

As this research involved interviewing which is classified as 'human research' it was a requirement that it be conducted in compliance with the University of Tasmania's Research Ethics Policy. Approval from the University of Tasmania's Human Research Ethics Committee (Tasmania) Network was sought and granted under the approval reference number: H9115. Prior to the commencement of each interview an information sheet outlining the purpose and the scope of the interviews was handed to each interviewee. Attached to the information sheet was a consent form that outlined the ethical considerations of the interview process that needed to be signed by the interviewee before the interview could commence. (See Appendices A to C)

3.5 Research Design

This research uses a multiple case study research strategy as this strategy was regarded appropriate in seeking to gain understanding and insight in an exploratory and descriptive study (Cavaye, 1996). In an attempt to avoid being driven by preconceived ideas the researcher's intent is to be guided as closely as possible by the rich contextual data.

3.5.1 Information Gathering through the Use of Multiple Case Studies

Multiple case study research is extensively used within Information Systems research (Benbasat et al., 1987; Shanks, 2002) as it enables the research phenomenon to be viewed from different perspectives (Darke et al., 1998; Yin, 1994). Miles and Huberman (1994, p. 207) declare that "… multiple cases are extraordinarily helpful in both generating explanations, and testing them systematically". Additionally, the multiple case study approach can be more persuasive than a single case study as their use allows for the investigation of multiples sources as well as a cross comparison (Darke et al., 1998; Noor, 2008; Yin, 1994).

Yin (1994) suggests that a degree of validity may be achieved if three or more cases replicate a particular finding, assuring the researcher that a stability or saturation point has been achieved (Eisenhardt, 1989; Glaser & Strauss, 1967; Strauss & Corbin, 1998). Saturation point is considered to have been reached when continued analysis of the data

fails to reveal any additional insights (Strauss & Corbin, 1998; Whitman & Woszczynski, 2004).

It is clear that no specific guidelines have been developed and universally accepted as the ideal number of cases. This is confirmed by Eisenhardt (1989) who suggests that the likely yield of the additional cases is the best indication of the number of required. Additionally, Benbasat et al. (1987) and Darke et al. (1998) believe that theoretical replication may be increased by analysing multiple case studies, enabling the researcher to select between adding cases to either replicate existing results or to provide contrast.

3.5.2 Semi-structured Interviews

Interviewing is the most commonly used data gathering technique in the field of social research (Fielding, 1993; Seale, 1998). The interview is a process of asking questions of an interviewee or interviewees, listening to the responses, and where appropriate asking following up questions, during an exchange that is recorded (Neuman, 2011). Seale (1998, p. 202) believes that the "… interview is more economical than observational methods since the interviewee can report on a wide range of situations that he or she has observed, so acting as the eyes and ears of the researcher". Fielding (1993, p. 138) recommends "... the questioning should be as open-ended as possible, in order to gain spontaneous information about attitudes and actions, rather than a rehearsed position, and the questioning techniques should encourage respondents to communicate their underlying attitudes, beliefs and values ...". This style of interviewing is known as semi-structured, and Myers and Newman (2007) suggest this type of interviewing technique is the most used for qualitative research in the Information Systems field.

Fielding (1993, p. 138) provided the following description of semi-structured interviews:

> The interviewer asks certain, major questions the same way each time, but is free to alter their sequence and to probe for more information. The interviewer is thus able to adapt the research instrument to the level of comprehension and articulacy of the respondent and to handle the fact

> that in responding to a question, people often also provided answers to questions we were going to ask later.

The semi-structured interview was adopted for this research for its ability to provide a framework to focus the interview whilst also providing flexibility to pursue any unforseen issues of interest uncovered during the interview. The semi-structured interview was also considered to be a suitable technique for gaining a deeper insight into the interviewee's thoughts and views on the phenomenon under investigation (Easterby-Smith, Thorpe, & Lowe, 1991; Myers & Newman, 2007). A further potential benefit of the semi-structured interview over the structured interview was the likelihood the interviewee would feel freer to articulate their viewpoint within the less structured interview environment (Flick, 2002).

3.5.3 Qualitative Analysis

According to Miles and Huberman (1994), Neuman (2011), and Patton (2002) qualitative research is acknowledged as an acceptable research method within the field of social sciences and is therefore an appropriate method to use within Information Systems research.

Qualitative methods can provide depth and richness particularly if the underlying objective is to obtain an explanation of the phenomenon as these methods provide the tools for the researcher to pursue the 'how and why' perspective (Yin, 1994). For Myers (1997) and Myers and Avison (2002) qualitative research methods can assist the researcher in exploring and comprehending the interviewee's social and cultural environment.

Silverman (2001) claims the choices made in selecting qualitative data gathering techniques by social researchers illustrate their commonly held belief that information collected through these techniques offer a far greater and deeper understanding of the social phenomena, over the use of quantitative data alone. An approach used to enhance the prospect of achieving credibility for qualitative research using case studies is to remove any ambiguity in the research methods and procedures, and permit the reader

to evaluate the appropriateness and accuracy of the chosen methodology within the context of the research (Dubé & Paré, 2003; Myers & Newman, 2007; Yin, 1994).

The outline of the techniques used to analyse and interpret the data, and the procedures used to discuss and present this research are:

- Development of matrices presenting the effect-outcome between the dependent and independent variables identified in the cause-effect relationships (Miles & Huberman, 1984a, 1984b, 1994; Shanks, 2002);
- Critical examination of the matrices of the effect-outcome were carried out in order to explore alternative feasible interpretations of the cause-effect relationships (Bryson, Ackermann, Eden, & Finn, 2004; Nakayama, 2005); and
- A set of causal diagrams were developed to graphically represent the major issues and the significant causal relationships between them (Miles & Huberman, 1994)
- Based on the above analysis, dependent and independent variables were identified using the interviews and the variables operationalised into key concepts (Armstrong, 2005; Hodgkinson & Clarkson, 2005)

3.5.4 Schedule of Interview Questions

As indicated above, face-to-face interviews were used to gain insight from the key people involved in establishing and administering the publically funded ICT-related programs within Tasmania during the ten year period of 1996 to 2005. To assist in conducting the interview a schedule of interview questions was drawn up to address the following issues: the participant's involvement in the program / policy development, the intent for the program, their role, the program outcomes, and the lessons learnt from the process.

The question schedule was validated by carrying out a pilot interview to make sure the data obtained from the interview questions were clear, meaningful and well directed (Flick, 2002; Yin, 1994). A copy of the interview schedule was sent before the interview to each potential interviewee (see Appendix D).

The pilot interview was conducted with a colleague who had some knowledge of the ICT Development Programs within the context of Tasmania. The process of gaining assent to being interviewed, briefing on the nature of the research program and the interview, conducting the pilot interview, gathering the data through audio recording, monitoring the timing of the interview, and partial transcript of the results were successfully completed. In addition, a post-interview session with conducted with the pilot interviewee, to gather feedback on the nature of the questions asked, the style of questioning and follow-up of issues raised, and the overall process of administration of the interview. The following useful feedback was gained from this pilot process and incorporated into the actual interviewing schedule:

- Pertinent issues that should have been raised in the introduction to the interview session and in the questions were identified;
- The time duration of the interview was restricted to about 45 minutes maximum, due to the broad nature of the issues being discussed, and the need for the interviewee to recall a relatively large amount of detail;
- The general nature of the questions being asked, and the mode of conduct of the interview, as a semi-structured questionnaire, were confirmed as being appropriate to the information gathering requirements of the research project;
- Minor changes were made to enhance the clarity of questions in the interview schedule.

3.5.5 Selection of ICT Development Programs

To identify the major nationally funded ICT development programs during the ten year period that spanned the majority of the initiatives in Tasmania of the National funding bodies, 1996 to 2005, an initial list of programs was made following a search of relevant government and non-government documents, including press releases and Internet sources. The final list of programs was chosen based on their funding, stated significance and scope, and following consultation with the research supervisors and advisor. The major programs identified were: the Tasmanian Electronic Commerce Centre (TECC), the Intelligent Island Program, the Broadband eLab (B-eLab), the Business Development Fund (BDF), and the Computers in Schools program.

1996 was a pivotal year in the funding of ICT Development Programs in Tasmania. In that year the Nixon Report *Tasmania into the 21st Century; report to the Prime Minister of Australia and the Premier of Tasmania* (Nixon, 1997) was compiled, and legislation for one-third sale of Telstra was passed in the Australian Senate in December 1996. Funds from the sale of Telstra formed a financial basis for several of the ICT Development Programs considered in this thesis. The Nixon Report was instrumental in the development of the Directions Statement (Rundle, 1997) by the Tasmanian Rundle Government, and as justification for the establishment of the Tasmanian Electronic Commerce.

By 2005 these programs had virtually all been expended. The Intelligent Island Board had been wound up, and remaining funds reallocated, major funding programs for the Tasmanian Electronic Commerce Centre had been completed, the Telstra B-eLab had moved to a different funding model (Anderson, Lloyd, & Cobb, 2005; Skatssoon, 2005), and Round One of the Computers in Schools program was completed.

3.5.6 Selection of Potential Participants

Eisenhardt and Graebner (2007, p. 28) suggest there can be bias in the interview data and that this bias can be mitigated by "… using numerous and highly knowledgeable informants who view the focal phenomena from diverse perspectives. These informants can include organizational actors from different hierarchical levels, functional areas, groups, and geographies, as well as actors from other relevant organizations and outside observers such as market analysts."

In order select the appropriate people to interview, an initial list of potential participants was made following a search of relevant government and non-government documents, including press releases and Internet sources. Those identified for listing were people who had clearly been a key participant in the establishment and administration of the relevant publically funded programs.

To finalise the list, a snowball approach was adopted in which recognised experts in the funding programs were asked to nominate other potential participants (Dey, 1999). This

approach was adopted extensively, until nineteen potential participants had been identified. A cover letter inviting them to participate and an information sheet, including assurance of confidentiality in line with the Ethics Committee's guidelines, was sent to all the potential interviewees (Appendices A - D). Those who did not respond within three weeks were followed up with a phone call. Those who indicated their willingness to be interviewed were followed up with either a phone call or an email to negotiate a mutually suitable time and place to conduct the interview. A total of seven persons agreed to participate in the program. Those persons who declined to be involved in the program provided responses of the form of inability due to ill health, not considering that they could add significant new knowledge, were no longer working in Australia, or did not wish to discuss the matters covered in the interviews.

The participants who did agree to be interviewed are not considered to be a statistically representative sample, but did span the five major ICT funding programs in Tasmania over the period 1996 to 2005. These participants were involved in the funding programs as board members, senior managers, including a CEO of a funded body, and as a political advisor of a parliamentary member who was critical to approval of funding of several of the programs. There was no apparent political or administrative bias amongst the participants, as each honestly portrayed the events in which they had been involved during the interviews.

3.5.7 Interviews and Transcripts

The interviews were conducted face-to-face, with the exception of one phone interview. Following an introduction that outlined the purpose of the research, and the expectations for the interview, the interviewees were asked to sign Ethics Committee approved consent form.

The interviews, including the phone interview, were digitally recorded with the consent of the interviewee. Recording the interviews is seen as an important part of the analysis of the interview (Have, 2004; Perakyla, 2004). Recording also allows the researcher to focus on conducting the interview and responding to the interviewee, rather than concentrating on taking field notes, which can be a distraction (Neuman, 2011).

Neuman (2011) also suggests that recording the interview provides a permanent record and can assist the researcher in later identifying points and issues missed during the interview.

The transcription of the interviews was completed as soon as practical following each interview. Yin (1989) suggests that transcription is best completed while the interview remains fresh and clear in the researcher's memory.

3.5.8 Data Coding

Analysing data in the qualitative approach is described by Creswell (2005), and Ziebland and McPherson (2006) as an eclectic process and agree that there is no single 'right' approach. Nevertheless, in general, data analysis uses a method of evolving codes and classifications, and producing methodical subjective comparisons and contrasts of the data. The sole aim of the process, as Ponkinghorne explains, "… is not the marks on the paper but the meanings represented in these texts" (2005, p. 138).

"Analysing data is the heart of building theory from case studies, but it is both the most difficult and the least codified part of the process" (Eisenhardt, 1989, p. 539). Therefore it is essential to gauge the degree to which the case study researcher has clarified the data analysis processes. To improve the understanding of the findings and to assist the reader in judging the degree to which they are the output of a systematic and rigorous process, a clear description of the analytic technique or techniques is required (Dubé & Paré, 2003).

Authors such as Stake (1995) and Ziebland and McPherson (2006) remind researchers that the goal of qualitative data analysis is to communicate an understanding of data, and a significant aspect of this is to provide an understanding of the data collection methods, such as semi-structured interviews. Diefenbach (2009), Anfara et al. (2002), and Ziebland and McPherson (2006) indicated that the large volume of data semi-structured interviews usually generate can be problematic due to the complexity of analysis, and the often difficult and at times contradictory nature of the data collected.

Coding is a technique used to categorise data into different groupings, using descriptive words, phrases, themes or codes in an attempt to capture the meaning from the data. The process aims to transform the data to a higher level of abstraction by reducing data into smaller groupings of analysis and at the same time reducing the volume of the data (Creswell, 2005; Neuman, 2011). Miles and Huberman (1984b, 1994) described data analysis as consisting of three concurrent activities; 1) data reduction: "… the process of selecting, focusing, simplifying, abstracting, and transforming the raw case data", 2) data display: the "... organised assembly of information that permits conclusion drawing", and 3) conclusion drawing and verification: "… noting regularities, patterns, explanations, possible configurations, causal flows, and propositions" (Miles & Huberman, 1994, p. 11). These three processes occur throughout the data analysis process and selection of a theoretical framework and is accomplished through producing summaries, coding, separating out themes, clustering, partitioning, and note writing (Miles & Huberman, 1984b, 1994). Miles and Huberman (1994) also consider qualitative analysis, through its detailed study, to be a very effective approach for assessing causality, and further, that it has the ability to identify structures beyond nominal association.

The processes of open coding, axial coding and selective coding were adapted from the Grounded Theory methodology (Strauss & Corbin, 1990) for use in the coding phases of this research project. Each of these coding techniques were employed in the data analysis phase of the research project.

3.5.8.1 Open Coding

Open coding, a coding technique first described by Strauss (1987) and refined further by Strauss and Corbin (1990, p. 57) "… represents the operations by which data are broken down, conceptualised, and put back together in new ways". Neuman (2011) suggests that the open coding facilitates finding themes from deep within the data. Strauss and Corbin (1990, p. 62) go as far as to say that "Without this first basic analytical step, the rest of the analysis and communication that follows could not take place".

3.5.8.2 Axial Coding

Axial coding builds on the open coding process briefly outlined above, focusing more on the codes than on the data, with the aim of organising and expanding the theoretical framework by identifying linkages within and between the categories (Neuman, 2011). Axial coding observes the situations and conditions which give rise to a phenomenon and the strategies used to influence and manage that phenomenon (Strauss & Corbin, 1990).

3.5.8.3 Selective Coding

Selective coding is defined as "… the process of selecting the central or core category, systematically relating it to other categories, validating those relationships, and filling in categories that need further refinement and development" (Strauss & Corbin, 1990, p. 116). All codes drawn from the axial coding process need to be either directly or indirectly related to the focal core code. "These codes can be classified as representing context, conditions, actions, interactions and outcomes" (Douglas, 1997, p. 50).

3.5.9 Crystallisation of Results

The concept of crystallisation has been employed in the derivation of the results, where the same topic is seen from different perspectives by different interviews (Richardson, 2000), and the analysis has retained the validity of these perspectives. It replaces the concept of 'triangulation' and can typically be found in multi-mode presentations (Ellingston, 2009).

> "Viewed as a crystalline form, as a montage, or as a creative performance around a central theme, triangulation as a form of, or alternative to, validity thus can be extended. Triangulation is the display of multiple, refracted realities simultaneously. Each of the metaphors 'works' to create simultaneity rather than the sequential or linear. Readers and audiences are then invited to explore competing visions of the context, to become immersed in and merge with new realities to comprehend" (Denzin & Lincoln, 2000, p. 6).

3.6 Data Analysis

Bernard (1988) suggests that a researcher needs to be able to describe and explain the phenomenon being researched. A description of a complex phenomenon can be express by dismantling the phenomenon into a set of its component parts. However, he warns that to stay true to the meaning of the data, excessively reduction of the component parts must be avoided. Further he states that an explanation of the phenomenon can be formulated by describing the rules that link those component parts together (Bernard, 1988).

The use of graphical networks is put forward by Miles and Huberman (1994) as a means of describing and explaining the phenomenon being researched.

A series of cause and effect diagrams or causal diagrams developed from the work Miles and Huberman (1994) were used in this research to visually depict the component parts of each case study. This technique of analysis was useful in finding the issues contained within the data, in identifying the relationships between these issues, and in supporting the process of interpreting and explaining (Halldorsson & Aastrup, 2003).

The nodes of the graphical networks were developed from the concepts uncovered during the data coding process. The causal links, or relationships between the nodes were identified through an exhaustive analysis of the interview transcripts. In order for a relationship to be included into the diagrams, it needed to be clearly identified or strongly implied by the interviewee. Tables were developed using a spreadsheet to help in the process of theme identification. Sets of causal diagrams were developed for each of the interviews and they were grouped according to their identified theme.

One of the major advantages of using the causal diagrams is that they can offer a deep insight into the structure of the data and the relationships that exists, which in turn assists in the deeper understanding of the interaction at play within each set of data. Extensive analysis was performed on each of the transcripts so that the diagrams and tables would be saturated with information derived from each of their respective interviews.

3.6.1 Cause-Effect Relationships

Following the transcription of the interviews, each interview was explored by means of qualitative analysis technique to build up the interpretation through the coding process and the exploration of the various alternative explanations of the phenomena as detailed by the interviewee. During the process of coding the transcripts analytical notes were taken to assist in providing meaning and clarity, and to also aid the process of revising and enhancing the structure of the coding (Miles & Huberman, 1994).

The significant topics were compared across the different interviews looking for matches. Each interpretation and explanation was critically analysed to reassess their grounding in the data, the degree to which there was mutually self-consistency, and how plausible the explanations of the issues mentioned by the participants were. Illustrative diagrams were then developed to characterise and clarify the character of the cause-effect associations contained in the data.

3.6.2 Outline of Data Analysis Process

The key processes of the data analysis procedure used to analyse the collected data were:

1. The causal relationships in the data were identified using a research methodology based on Miles and Huberman (1994), in which the data were tabulated, and then the stated causal relationships depicted graphically (see Appendix E). In order to capture the prime facie causal relationships, as stated by the interviewees, minimal interpretation was applied at this level;
2. The data were then analysed at the within-case level, dealing with each interviewee as a distinct case study. A review of the outcomes of this stage of the research was conducted with the research advisor, in order to verify the completeness and accuracy of the coding. The advisor did not add significantly to the coding of these causal relationships;
3. The data from these causal mappings were then analysed to identify the key actions discussed by the interviewees, and topic area of that action, and the consequences of each action, as stated by the interviewee. The data were then

summarised, as only actions of significance to the research program were considered. The results of this analysis were tabulated (see Appendix F);

4. The data were analysed at the within-case level, dealing with each interviewee as a distinct case study. This enabled the clarification of the range of actions of significance to the research, the consideration of commonality of these actions and their outcomes, and the visualisation of the significant causal relationships, as stated by the interviewees. The results of this analysis stage were also reviewed jointly with the research advisor, but without significant changes being made;
5. From the tabulated data (see Appendix F), the actions were grouped around topic areas (see Appendix G). This allowed the actions to be grouped around topic levels, and the topics to be abstracted until the researcher considered an appropriate level of topic concepts had been reached. The data were analysed at the within-case level, dealing with each interviewee as a distinct case study;
6. Finally the data were summarised at the cross-case level by consideration of the points of agreement and disagreement between the distinct interviewees. Only causal relationships that were consistent across all interviewees were considered further.

3.6.3 Development of Causal Diagrams

Based on the work of Miles and Huberman (1994) causal diagrams were developed with the intent of uncovering the causal relationships linking issues identified in the data, and considered to be significant.

The adoption of causal models as a network of variables is suggested by Miles and Huberman (1994) as a means of visually discovering relationships in data derived from multiple cases. The goal of this approach is essential theory building through examination of the nature of the causal relationships present between variables, the variation of these relationships and consistent variables across cases, and the development of propositions regarding the nature of these relationships. This approach

is grounded in the data, since it seeks to model causal relationships as they are presented and elaborated by the interviewees, without interpretation.

Miles and Huberman (1994) suggest the researcher establish:

- Which of the identified factors could logically have an effect on other factors?
- Which of the identified factors could possibly be connected with each other?
- Which of the identified factors could be considered dependent on other factors being present so that they form a causal relationship?

The three components are used to construct a causal diagram; the input or independent variable, the intermediary process, and the output, or dependent variables, also known as the consequence or response. The seven steps listed below were used to develop the causal diagrams based on the work of Miles and Huberman (1994), Gharajedaghi, (1999), Fahrenkrog et al. (2002), and Sherwood, (2002):

1. Define the objectives of the modelling exercise and the achievability of the research:
    - What are the key issues to include and evaluate?
2. Investigate the availability of data within the interview transcripts:
    - What date is required?
    - Is the required data available?
    - How will missing or insufficient data be handled?
    - How will interview notes be used?
3. Model specification:
    - What are the direct or indirect links?
4. Collection, analysis and transformation of the data: the value of causal diagrams is in part dependent on the validity of the interview data.
5. Sequence the issues: this required the researcher to give due consideration to the sequence of variables.

6. Test and validate the causal network: researcher bias can influence the development of the causal diagrams, and the interpretation of the transcripts may be limited by missing or incomplete data. Making certain that it is grounded in the data can enhance the causal diagram's validity. Continually referencing the transcripts ensures the accuracy of each diagram, thereby increasing the validity and reliability.
7. Interpretation of the results: in the last step the researcher evaluated data from across the interviews to create summary causal diagrams. This was accomplished by comparing and contrasting the inputs, processes and outcomes from each case study and then developing the final set of causal diagrams.

3.6.4 Construction of the Causal Diagrams

Based on the work of Miles and Huberman (1994) the steps below provide a chronology of the process used to construct the causal diagrams:

1. The transcript of each interview was coded as a causal diagram that was grounded in the text.
2. Causal relationships were depicted essentially as they were described by the interviewee, and causal links were tagged with references to the actual textual basis for noting each such relationship.
3. Each code in these causal diagrams was described using an active clause, of the form 'doing something by someone to something' to emphasise that causal relationships were only occasioned by changes of state and the occurrence of each such causal relationship could be expected to lead to a consequent change of state.
4. Axial coding was applied to the causal diagrams to move the coding to a more canonical form, while still retaining the essential groundedness of the coding. This axial coding typically reworded the codes, without significant change to the meaning of the code.
5. The causal diagram of each interview was reviewed to identify the more important or significant codes and relationships.

6. Variables were associated with these more significant codes. Each of these variables was dimensionalised, with at least a scale of less-even-more or high-moderate-low.
7. A summary causal diagram was produced for each interview that contained only the variables from the previous step (6), and the relevant causal relationships between these variables, as identified in the first step (1) from the transcripts. The grounded, interpretive nature of the analysis was retained in that no new interpretations of the data were introduced beyond those proposed by the interviewee. Steps 3 and 5 are essentially a process of abstraction rather than re-interpretation of the data.
8. Generating factors and responses
9. From the analysis in steps 1-8 the significant input factors, output responses and the nature of their dependency relationships, as depicted by the interviewee, were identified.

By the nature of sense-making in narration, the participants tended to serialise events and phenomena, and ascribe causality to sequences of events, in order to interpret and present these phenomena in a logical manner (Miles & Huberman, 1994). Because of the interpretive nature of this research, such causal descriptions were taken at face value, and the veracity of such statements was not questioned. This is both a recognised weakness of the narrative-based form of information gathering (Miles & Huberman, 1994) and is also a considered to be a strength of this approach because it emphasises the participant's viewpoint and their ontology of the events being considered. In this research program the researcher was very fortunate to be able to gain access to willing participants who were very closely involved in major ICT funding programs at a state and national level, over a period of approximately ten years. The insight that these participants were able to offer into the decision making processes, the intent and the outcomes of these funding programs contributed significant to the richness of the research findings.

3.7 Summary

The research methodology adopted for this program is based on interpretivist stance, using subjective ontology, and interpretive epistemology, the data has been gathered through eight semi-structured interviews with seven senior managers who were closely involved in the events and phenomena surrounding the funding of ICT projects in Tasmania over the period 1996 to 2005. Each interview is treated as an individual case. Secondary data has also been gathered to support the analysis and interpretation of each case from a variety of extent documentation, including minutes of meetings, Tasmanian State and Australian National parliamentary Hansards, correspondence, reports and public announcements that were released during this time period.

The analysis of the data is qualitative, and is primarily based on the development of causal diagrams, closely following the methodology of Miles and Huberman (1984, 1994). These causal diagrams were then coding and qualitatively analysed using hierarchical aggregation to identify core categories or themes in the data. This analysis also follows closely the methodology of Miles and Huberman (1984, 1994) in deconstructing the data via tabular representations, synthesising possible interpretations and critically evaluating each such interpretation, based on the large volume of information available. While triangulation of these results was possible, to be consistent with the interpretivist approach, it is considered more appropriate to employ multiple sources of information to derive and evaluate consistent interpretations of the data.

Miles and Huberman (1994, p. 173) indicate that a fundamental reason for incorporation of cross-case analysis "is to deepen *understanding and explanation*". The goal of this cross-case analysis is not to seek generalisability beyond the scope of this research, but to strengthen the findings by seeking to find consistency across multiple cases, and identify the specific conditions under which such findings may arise. In addition, negative findings, or lack of consistency across multiple cases also informed the researcher, and highlighted conditions under which consistency was not present in multiple cases.

Consistent with the interpretivist stance adopted in this research, information gathered from all interviewees was taken at face value, without prejudice or judgement by the researcher. While some instances occurred where the events or phenomena described by an interviewee may not have been wholly consistent with other sources of information, such as the minutes of meetings, or reports, such information was accepted as being the legitimate view of that interviewee. Such minor discrepancies in information provided an interesting diversity of perspectives upon similar events and phenomena that informed the researcher regarding the complexity of the phenomena being examined.

The research methodology in Miles and Huberman (1984, 1994) proved to be both a strength and also problematic in the development and application of this research methodology. Miles and Huberman provide extensive advice on qualitatively deconstructing natural language transcripts, and also provide a variety of techniques that permit the researcher to visualise the data, to seek to identify relationships between the data, in both tabular and graphical formats. These techniques are highly appropriate for seeking to understand the phenomena and their relationships in such a complex sequence of events as covered by this research, and are sufficiently adaptable to be able to be applied to the various forms of natural language available to the researcher. This applies to be within-case and cross-case forms of analysis and critical interpretation. However, the examples in Miles and Huberman exclusively deal with educational case studies, with topic areas, dimensions and specific models of interpretation that are very different from those required for this research. Hence, the application of the research approach and techniques from Miles and Huberman required much interpretation and experimental application to develop and effective research method, and to yield the interpretations and depths of insight that led to the results presented in Chapter 5.

Chapter Four – Interviews and Vignettes

4.1 Introduction

This chapter details the interview process used to gather the data collected for this research. As outlined in the previous chapter, the data were collected via a series of semi-structured interviews, which were recorded using a digital audio recorder. To assist in the analysis of the data, the recordings were all transcribed. The chapter then presents two vignettes designed to provide context.

4.2 Interview Process

A total of eight semi-structured interviews were conducted during the period mid-2007 to mid-2009, with seven being face-to-face and one being conducted over the phone. Ethics approval to conduct the interviews was granted by the University of Tasmania's Human Research Ethics Committee (Tasmania) Network, and all interviews were conducted in accordance with their guidelines. Each interviewee was sent a cover letter, and an information sheet that included a consent form and an interview schedule (refer Appendices A, B, C & D). Each interviewee was asked to sign the consent form before the beginning of the interview. In the case of the telephone interview, a verbal agreement was given, and a consent form was signed at the subsequent face-to-face interview.

Consent was sought, and received, from all interviewees to digitally record the audio of the interview, and the recordings were later transcribed. All interviewees were given an assurance that their recordings would be kept securely, in accordance to the ethics guidelines, and that the recordings and transcripts would only be used by the researcher for the current research. Additionally it was agreed with each of interviewees that whilst their role would be identified, their name would be withheld.

4.2.1 The Interviewees

Interviewee 'A' was a senior political advisor to a member of the Australian Senate. The interview was conducted in the meeting room at the offices of the Senator and lasted for just over an hour. The researcher conducted the interview in the presence of the Research Supervisor.

Interviewee ‘B’ was a senior manager with a National public company that is involved in all aspects of ICT. The interview, which lasted a little over an hour, was conducted in Interviewee B’s office, and was conducted by the researcher and the Research Supervisor.

Interviewee ‘C’ was a senior academic at the University of Tasmania. The interview was held at a café, lasted for an hour, and was conducted by the researcher.

Interviewee ‘D’ was the CEO of a Tasmania company that covers all aspects of ICT use and development. The first interview was conducted via phone, as Interviewee D was located in a different city from the researcher. The researcher used a speaker phone to record the interview, which lasted for 30 minutes.

The second interview with Interviewee ‘D’ was held around a table located in a tutorial room at the University of Tasmania. The interview lasted one hour and was conducted by the researcher, plus a professor and a researcher from the School of Computing and Information Systems.

Interviewee ‘E’ was a former senior member of staff of a Tasmanian ICT company. The interview was held in the office of the Interviewee, and lasted for one and a half hours. The researcher conducted the interview.

Interviewee ‘F’ was a senior public servant involved in the development of ICT policy. The interview was held in the office of the Interviewee, lasted for one and a half hours, and was conducted by the researcher.

Interviewee ‘G’ was an Executive Director of a Tasmanian ICT company. The interview was held over lunch in a restaurant, and lasted for one and a half hours. The researcher conducted the interview in the presence of the Research Supervisor.

4.3 Vignettes

To illustrate the nature of the data gathered two short vignettes are presented: a constructed narrative of the events surrounding the sale of Telstra over the period from 1996 to 2005, and one based on the transcript of the interview with Interviewee.

4.3.1 Vignette: Privatisation of Telstra

Until the 1980s, with the exception of some countries such as the USA and the Philippines, most telecommunications utilities were publicly owned enterprises (Brown, 1997). During the 15 year period from 1981 – 1996 Brown (1997) lists the full or part privatisation of 19 major government owned telecommunications enterprises, covering 16 countries.

Australia's government owned telecommunications industry underwent a series of changes in the two decades before its partial and later full privatisation. The most significant of these was the separation of the Post Master General's (PMG's) department into postal services (Australia Post) and telecommunications services (Telecom Australia) (Australia Post, 2008).

Although the Coalition parties (Liberal and National) have long held to the Neo-liberal view that private ownership can generate more efficient outcomes than the public sector, it was the Labor Government of Hawke and Keating that laid the foundation for the privatisation of Telstra by privatising public enterprises such as: the Commonwealth Bank; QANTAS airline; and the telecommunications satellite operator Aussat (Svensen & Teicher, 1998).

Privatisation in Australia during the late 1980s and 1990s was not just the domain of the National Government; it was simultaneously being carried out at the state level. The Reserve Bank of Australia, who calls public enterprises 'public trading enterprises' or PTEs, noted that States were privatising their banks, insurance offices, electricity and gas utilities, and in some cases their gambling interests (RBA, 1997).

The Federal Coalition's intention to Privatise Telstra was first raised publicly in 1990 by the Liberal Party's Shadow Treasurer, Dr John Hewson, and Shadow Minister for Communications, Richard Alston, the during a radio interview (O'Leary, 2003a).

Although the privatisation of Telstra was part of the Coalition's election platform for the 1993 election, the issue was largely overshadowed by the public debate surrounding the Coalition's proposal to introduce a Goods and Services Tax (GST) (O'Leary, 2003a). The election was won by the Labor Party, which under the leadership of Paul Keating, opposed these policies.

During the 1996 National election campaign, the issue was again part of the Coalition's election platform; however, the 1996 policy was to only partially privatise Telstra, selling one third by public shares, with the balance staying in government control.

The major features of the policy were as follows:

- "One-third of the Commonwealth's equity to be made available through a share float, 65% of which would be reserved for Australian investors as 'A' class shares.
- Foreign investors only to be allowed to subscribe to 35% of the float and to be issued with B class shares. No foreign investor to be allowed to acquire more than 5% of the one-third float.
- Incentives to be provided to Australian citizens and Telstra employees to encourage participation in the float.
- Telstra not to be broken up.
- Telstra to remain incorporated in Australia with an Australian citizen as Chairman of the Board, of which a majority will also be Australians.
- Government to reserve right to veto any excessive management remuneration.
- The Community Service Obligations (CSOs) of telecommunication carriers to be maintained, along with the requirement for such carriers to contribute to a Universal Service Levy to meet the cost of the CSOs.

- The existing right to un-timed local telephone calls to be maintained and guaranteed by legislation.
- All existing price caps to be maintained and the price controls outlined in the Labor Government's August 1995 statement to be adhered to.
- A new legislated Customer Service Guarantee to be met by all telephone companies.
- Competition regulation to be administered by a specialist branch of the Australian Competition and Consumer Commission." (CoA, 1995, p. 1)

To counter claims that the privatisation of Telstra would have negative social impacts the Government included in the above list Community Service Obligations (CSOs), Customer Service Guarantees (CSGs) and price controls. If elected to government, the Coalition committed itself to legislative framework of consumer safeguards that included:

- "the requirement that all carriers contribute to the Universal Service Levy
- the requirement that a Standard Telephone Service be offered to all Australians (with an immediate review to determine if the Standard Telephone Service should be upgraded to accommodate new technologies)
- the maintenance of the right to untimed local calls for residential and business customers
- maintenance of the price cap regime
- continuation of targeted assistance
- acceleration of network modernisation and provision of digital services." (CoA, 1995, p. 5)

On 2nd March 1996, the Coalition Parties, under the leadership of the Prime Minister John Howard won the 1996 National election (House of Representatives). However, in the Senate the Coalition had 37 Senators, with 38 Opposition (Labor, Democrats and Greens) Senators, with 1 Independent Senator (AEC, 2007b).

After five weeks in office the Government announced a 'scoping' study into the one-third sale of Telstra.

> The scoping study was to advise on the legal, technical, commercial, policy, public communications and management advice needed to promptly proceed with the sale. A Task Group was formed within the then Department of Finance (DoF) to progress the scoping study. (Barrett, 1998, p. 27)

On 2nd May 1996, two months after winning office, the Government introduced into Parliament (House of Representatives) the first piece of legislation dealing with the privatisation of Telstra: the Telstra (Dilution of Public Ownership) Bill 1996. The bill's official description was: A Bill for an Act relating to the dilution of the public ownership of Telstra, and for other purposes (CoA, 1996c).

The Bill was received by the Senate a week later and agreement was reached to refer the Bill to the Senate's Environment, Recreation, Communications and the Arts References Committee, which was to report back to the Senate by 22nd August 1996 (CoA, 1996d).

The Committee, which consisted of one Australian Democrat, three Coalition, and four Australian Labor Party (ALP) Senators, listed 37 recommendations in their report titled, "Telstra: To Sell or not to Sell?". Their first recommendation stated: "The Committee recommends Telstra remain in full public ownership" (CoA, 1996d, p. 181)

However, the Government Senators' Report (Minority Report), "… strongly recommend that the Telstra (Dilution of Public Ownership) Bill 1996 be passed by the Senate in its present form". It went further than just presenting their own recommendation by rejecting "… the key recommendations of the combined Opposition Parties (ALP and Australian Democrats) that Telstra remain in full government ownership" (CoA, 1996a, p. 2).

Senate Balance of Power

Senator Malcolm (Mal) Colston, a life-long member of the Australian Labor Party, resigned his membership of the ALP on 20th August 1996 to become an Independent Senator. On the nomination of the Coalition Senator Colston was elected Deputy President on the same day (CoA, 2001a).

Senator Colston's resignation shifted the balance of the Senate from the existing 37 Coalition Senators, 38 opposition Senators and 1 Independent Senator to 37 Coalition Senators, 37 opposition Senators and 2 Independent Senators (AEC, 2007b). See Tables 1 and 2.

Table 1. Members of the Senate by Party: July - August 1996

	ALP	Lib	NP/CLP	Dem	Greens	Harradine	Indep	Total
20-Aug-96	28	31	6	7	2	1	1	76
1-Jul-96	29	31	6	7	2	1	-	76

Table 2. Members of the Senate by Grouping: July - August 1996

Balance	Jul	Aug
Coalition	37	37
Opposition	38	37
Independent	1	2

Table based on data available from the Australian Electoral Commission (AEC, 2007b)

Legislation Passes Senate

On the 11th of December 1996, the legislation to sell one-third of Telstra passed the Senate with support of the 2 Independent Senators, Mal Colston and Brian Harradine (CoA, 1996b).

In negotiations with the Government for his support for the sale of Telstra Senator Harradine:

> ... secured AU$183 million for Tasmanians for an unprecedented program combining environmental protection with technological advancement. This money was used to establish 59 on-line access centres throughout Tasmania, Telehealth centres, the Tasmanian Electronic Commerce Centre, Tasmanian Business On-line, landcare projects, walking tracks and facilities in the World Heritage area, National Parks and other Natural Heritage Trust projects. (Kingston, 2004)

Second Part Sale of Telstra

On 30th March 1998, the National Government introduce legislation into Parliament to sell the remaining two-thirds of Telstra (CoA, 1998a). The following day the Bill was referred by the Senate to the Environment, Recreation, Communications and the Arts Legislation Committee (CoA, 1998d). The Committee reported back on 26th May 1998, and recommending that the remaining portion of Telstra be sold providing that funds be set aside to improve telecommunications services in Australia's rural areas (CoA, 1998f).

The Senate, on 11th July 1998, voted on the Telstra (Transition to Full Private Ownership) Bill 1998, and it was defeated on the vote of Senator Colston (CoA, 1998c).

In response to the failure to sell the remaining two-thirds of Telstra, on 22nd July 1998 Senator Richard Alston, the Minister for Communications, and John Fahey, the Minister for Finance and Administration, announced a staged approach to the full sale of Telstra (Alston & Fahey, 1998)

The major points of the policy included:

- introduction to Parliament of a new Telecommunications Bill bringing together customer service safeguards which are to apply irrespective of any further changes in Telstra's ownership;

- the Government to sell the remainder of Telstra in stages. The first sale will be of 16%, which will leave 51%, and majority control, in Government hands; and
- no further sale, beyond 49%, until the Government has established an independent inquiry which will assess Telstra's service levels to customers in each of metropolitan, rural and remote areas against prescribed standards. (Alston & Fahey, 1998)

Following the re-election of the Coalition Government on 3rd October 1998 (AEC, 2007a), the Telstra (Transition to Full Private Ownership) Bill 1998 was re-introduced on 12th November 1998 (CoA, 1998b). The Bill although essentially the same as before, included the provision for an independent inquiry to verify that Telstra has achieved a set of service standards, as well as setting out 'Social Bonus' initiatives (CoA, 1998b). On 2nd December 1998, the Senate referred the Bill to the Environment, Communications, Information Technology and the Arts Legislation Committee (CoA, 1998e).

Second Sale Bill passes the Senate

A 'social bonus' of AU$314 million from the Telstra sale designed to increase access in regional, rural and remote Australia, was added as an outcome of the Telstra sale. With the support of independent Senators Colston and Harradine, the Telstra (Transition to Full Private Ownership) Bill 1998, passed the Senate on 21st June 1999 (CoA, 1999).

To secure his support for the 16%, second sale of Telstra, Senator Harradine negotiated AU$150 million for Tasmania, "… plus a further AU$20 million from Telstra, leading to the funding of the Intelligent Island program, NetAlert to promote Internet safety to Australians, funding under the Networking the Nation program and the Launceston Broadband Project" (Kingston, 2004, para. 56).

Third Sale

In preparation for the third sale of Telstra, on 19th March 2000, Senator Alston, the Minister for Communications, announced the Telecommunications Service Inquiry

(TSI) to assess the adequacy of telecommunications services in metropolitan, regional, rural and remote Australia. As the inquiry was to be chaired by Tim Besley, the inquiry became commonly referred to as the Besley Inquiry (Alston, 2000b).

On 30th September 2000 the report from the TSI was presented to Senator Alston. The report indicated the overall the performance of the telecommunications sector was viewed positively; however, it acknowledged some services in rural and remote Australia required remedial action to make them adequate (CoA, 2008).

The Government responded to the TSI on 15th May 2001 by providing AU$163.1 million to improve regional, rural and remote telecommunications services in Australia (Alston, 2001).

The Coalition won the National election held on 10th November 2001 (AEC, 2001), and in the Governor-general's speech on 12th February 2002 at the opening of Parliament, it was announced that, "The Government will not proceed with any further sale of Telstra until it is satisfied that arrangements are in place to deliver adequate services to all Australians" (CoA, 2002, p. 22).

Senator Alston, on 16th August 2002, announced the setting up of the Regional Telecommunications Inquiry (RTI), "... to further review telecommunications services to regional, rural and remote Australia. The inquiry will also look at whether additional arrangements are needed to ensure that all Australians continue to share in the benefits of further service improvements and developments in technology" (Alston, 2002, para. 1). Dick Estens was appointed to chair the Inquiry (Alston, 2002).

RTI report was released on 6th November 2002, and it concluded that measures had been put in place to address the concerns raised in the TSI. The report also listed 39 recommendations for improving telecommunication service in regional, rural and remote Australia (Estens, 2002). All 39 recommendations of the RTI were accepted and an announcement made on 25th June 2003 that the Government planned to spend AU$181 million as a response to the recommendations (Alston & Anderson, 2003).

The following day, 26th June 2003, the Telstra (Transition to Full Private Ownership) Bill 2003 was introduced, which would allow for the Governments remaining shareholding in Telstra to be sold (CoA, 2003a). The Bill passed in the House of Representatives on 21st August 2003 (CoA, 2003b).

Five weeks later, on 8th September 2003, Telstra released its response to the RTI, which proposed to improve fixed telephone services, "… including:

- addressing incidents of poor service performance and delays;
- better managing congestion issues with certain types of small pair gain systems; and
- streamlining new service connections for customers moving into newly-built residences" (O'Leary, 2003b, para. 171).

The Senate rejected the Telstra (Transition to Full Private Ownership) Bill 2003 on 30th October 2003, when Senators from Labor, Democrats, and One Nation, joined with independents Brian Harradine, Meg Lees, and Shayne Murphy (CoA, 2003c).

The Government, on the 30th March 2004, reintroduced the legislation to fully privatise Telstra, which was blocked by a combination of Labor and minor party Senators (CoA, 2004b).

The Coalition won the National election held on 9th October 2004, and the Coalition also gained control of the Senate (AEC, 2004). This led to the speculation that the full sale of Telstra was assured, however, the National Party Senators required an assurance that deficiencies with rural telecommunications services would be fixed before agreeing to pass sale legislation in the Senate (The Age, 2005).

The legislation authorising the full sale of Telstra passed the Senate on 14th September 2005 (CoA, 2005b), and by November 2006, 66% of the Government's remaining 6.4 billion shares were sold (McPhee, 2008).

A further 1.5% of the Commonwealth's shareholding was transferred on 24 November 2006 to the Telstra Sale Company Limited to be held as Bonus Loyalty Shares (McPhee, 2008). That left 17% or 2.13billion shares which were transferred to the Future Fund, a financial asset fund designed to accumulate financial assets and invest them on behalf of the Australian Government to address the Government's unfunded superannuation liability, on 28th February 2007, and 28th June 2007 (Future Fund, 2010; McPhee, 2008).

Major Events in the Sale of Telstra, 1975-2006

Table 3 provides a chronology of the major events in the sale of Telstra, and some of the significant ICT development programs that the sale funded in Tasmania.

Table 3. Major Events in the Sale of Telstra: 1975 - 2006

1975	Jul	Postmaster General's Department (PMG) split into the Australian Postal Commission (Australia Post) and the Australian Telecommunications Commission (Telecom Australia) (Australia Post, 2008)
1991	Nov	Telecom Australia incorporated as an Australian public limited liability company (Telstra, 2007)
1993	Apr	Telecom Australia becomes Telstra Corporation Limited trading as internationally as Telstra (Telstra, 2008)
1995	July	Telecom Australia begins trading domestically as Telstra (Telstra, 2008)
1996	Jan	John Howard, leader of the National Opposition announced the Coalition's policy to sell one third of Telstra (O'Leary, 2003a)
	Mar	Coalition, under the leadership of John Howard wins National election (Newman, 2004)
	Apr	The National Government announces a scoping study into the proposed sale of one-third of Telstra (Barrett, 1998)
	May	Government introduced the first piece of legislation dealing with the privatisation of Telstra (CoA, 1996c)
		Bill referred to the Senate's Environment, Recreation, Communications and the Arts References Committee (CoA, 1996d)

	Aug	The Committee listed 37 recommendations, the first recommended that Telstra remain in full public ownership (CoA, 1996d)
		The alternate Government Senators' Report (Minority Report) , recommended the Telstra Bill 1996 be passed by the Senate in its current form (CoA, 1996a).
		Senator Mal Colston resigned his membership of the ALP to become an Independent Senator, was elected Deputy President of the Senate (CoA, 2001a)
	Dec	The legislation to sell one-third of Telstra passed the Senate with support of Independent Senators Colston and Harradine (CoA, 1996b)
1997	Jul	Service Tasmania Project was established by Tasmanian Government (DPAC, 2003)
	Aug	The Tasmanian Electronic Commerce Centre (TECC) incorporated (CoA, 2005c)
1998	Mar	Government introduce legislation into Parliament to sell the remaining two-thirds of Telstra (CoA, 1998a)
1998	Mar	Bill referred by the Senate to the Environment, Recreation, Communications and the Arts Legislation Committee (CoA, 1998d)
	Mar	Telehealth, a network of telehealth facilities, funded through the NTN Program to provide face-to-face visual communication between patients, primary health care providers and specialists to take place without the need for significant travel (DPAC, 2003)
	Apr	Tasmanian Communities Online (TCO) Project successful applicants announced (TCO, 1998)
	May	Committee recommended the remaining portion of Telstra be sold providing that funds be set aside to improve telecommunications services in Australia's rural areas (CoA, 1998f)
	Jul	The Bill to sell Telstra was defeat in the Senate on the vote of Senator Colston (CoA, 1998c)
		Government announced a staged approach to the full sale of Telstra (Alston & Fahey, 1998)
	Oct	Coalition Government re-elected (AEC, 2007a)
	Nov	Telstra (Transition to Full Private Ownership) Bill was re-introduced but included provision for an inquiry to verify that Telstra has

		achieved a set of service standards, as well as setting out 'Social Bonus' initiatives (CoA, 1998b).
1999	May	Telstra Corporation announced setting up of eLaunceston Project (eLp), by Telstra Research Laboratories (TRL). Focus to be on providing information and services through an Internet Portal to the Launceston community (Telstra, 2000)
	Jun	Telstra Bill passed the Senate with support of independent Senators Colston and Harradine (CoA, 1999)
		Connecting Tasmanian Schools project to establish infrastructure networks linking Tasmanian schools, provide additional computers, support equipment and internet filtering technology received funds from Telstra sale Social Bonus package (DPAC, 1999)
2000	Mar	Senator Alston announced the Telecommunications Service Inquiry (TSI) to assess the adequacy of telecommunications services in metropolitan, regional, rural and remote Australia, to be chaired by Tim Besley (Alston, 2000b)
		Intelligent Island Board membership announced (Alston, 2000a)
	May	Tasmanian Business Online (TBO), which was created to provide "... regional Australia with the opportunity to access world class e-commerce services cost-effectively, supported by the trading community development programs to assist in the task of enabling a business to move from a paper- based environment to online trading", commenced (CoA, 2005c, para. 30)
2000	Jun	The Launceston Broadband Project (LBP) a AU$30 million joint initiative between the Australian Government (AU$15 million) and Telstra (AU$15 million), commenced (CoA, 2004a)
	Aug	The Launceston Broadband Project (B-eLab) operated by Telstra TRL, opened as part of the LBP (Telstra, 2000)
	Sept	The report TSI indicated the overall the performance of the telecommunications sector was viewed positively; however, it acknowledged some services in rural and remote Australia required remedial action to make them adequate (CoA, 2008)
2001	Mar	TasTel, a local telecommunications entrant, formed as partnership between Aurora Energy, Hydro Tasmania, and carrier AAPT (DPAC, 2003)

	May	The Government responded to the TSI on 15th May 2001 by providing AU$163.1 million to improve regional, rural and remote telecommunications services in Australia (Alston, 2001)
	Nov	Coalition won the National election (AEC, 2001)
		Telstra announced that the eLaunceston Internet portal would merge with Telstra's Broadband eLab. Funding for the eLaunceston Internet portal to be extended under new arrangement (DPAC, 2002)
2002	Feb	Government announces any further sale of Telstra will not proceed until it is satisfied that arrangements are in place to deliver adequate services to all Australians (CoA, 2002)
	Aug	Senator Alston announced setting up of the Regional Telecommunications Inquiry (RTI), and appoints Dick Estens as chair (Alston, 2002)
	Nov	RTI report released and concluded that measure had been put in place to address the concerns raised in the TSI. The report listed 39 recommendations for improving telecommunication service in regional, rural and remote Australia (Estens, 2002)
2003	Jun	Government accepted all 39 recommendations of RTI and announced planned to spend AU$181 million as a response (Alston & Anderson, 2003)
		Telstra (Transition to Full Private Ownership) Bill 2003 introduced to allow the Government to sell remaining shareholding in Telstra (CoA, 2003a)
2003	Aug	Telstra (Transition to Full Private Ownership) Bill 2003 passed in the House of Representatives (CoA, 2003b)
	Sep	Telstra released response to RTI, which included proposals to improve fixed telephone services (Telstra, 2003)
	Oct	Senate rejected the Telstra (Transition to Full Private Ownership) Bill 2003 (CoA, 2003c)
2004	Mar	Reintroduction of legislation to fully privatise Telstra blocked by Senator (CoA, 2004b)
	Oct	Coalition won the National election and gained control of the Senate (AEC, 2004)
2005	Jan	Tasmanian Collaborative Optical Leading Test bed (tasCOLT) launched (TECC, 2008)

	Sep	The legislation authorising the full sale of Telstra passed the Senate (CoA, 2005b)
	Dec	Reallocation of Intelligent Island funds announced, with an in-principle allocation of AU$15 million to establish Tasmanian ICT Centre, and up to AU$18 million allocated to the Market Access and Partnership Program (MAPP) (Coonan, 2005)
2006	Jun	Launceston Broadband Project (LBP) funding ends (CoA, 2004a)
	Nov	66% of the Government's remaining 6.4 billion shares in Telstra sold (McPhee, 2008)
	Dec	Funding agreement to enable CSIRO to establish and operate the TasICTC was approved between the Tasmanian Government and CSIRO, resulting in a total investment of AU$30 million over five years (CoA, 2006)

4.3.2 Vignette: Tasmanian ICT Programs 1992 to 2005

Around 1992-93 there was pressure from a number of sources that encouraged the Tasmanian Government to consider a whole of government approach to ICT adoption and management. This came from the Commonwealth Government, Office of Government IT (OGIT) which was advocating a whole of government approach to the outsourcing of ICT services and to the standardisation and integration of ICT infrastructure across all government agencies. In addition, the increasing adoption of Internet services and the development of intranet architectures, such as universal email services and online staff directories necessitated a whole of government approach. The increasing cost of ICT procurement also necessitated the identification of standardised equipment platforms and service interfaces on a whole of government level.

Most other states had engaged in a review of their ICT management practices, principally Queensland, Victoria and New South Wales, had established whole of government ICT policy boards or groups, typically within their Treasury and Finance agencies. The Tasmanian Government also established an Information Resource Management Task Force (IRMTF) within the Management Improvement Program being run with the Department of Treasury and Finance.

The IRMTF met regularly over a period of approximately 15 months and produced a final reported in August 1994. It undertook a number of information gathering activities, including the engagement of an Honours student from the University of Tasmania's Department of Computer Science to undertake a review of major ICT projects over the preceding 12 years, the conduct of interviews and workshops with the thirty-odd ICT managers across the service, undertaking visits and reviews of the outcomes of similar exercises in other states, especially Queensland and Victoria, and the engagement of an ICT consultant from Queensland who had been actively involved in that state's review and restructuring of its ICT procurement and management.

The major outcomes of the IRMTF report were the establishment of an Information Strategy Unit within the Tasmanian Department of Premier and Cabinet, with responsibility for the development and promotion of ICT policy at a whole of government level, and the creation of ICT management reference groups within each agency. The Information Strategy Unit continued actively in this role until about 1999 when it was replaced by a new ICT unit with a greater focus on ICT project management.

In 1997 the Liberal Rundle Government launched the Directions Statement, with a significant component of ICT-based initiatives. These included a Computers in Schools program, the establishment of the Online Access Centre program across Tasmania, and the promotion of a number of ICT investment initiatives. One focus of the Directions Statement was the achievement of a number of ICT-based quick-win programs that would raise the status of the ICT industry in Tasmania, and the creation of ICT-based employment opportunities. One specific direction was seeking to attract call centres to be established in Tasmania, in each of the major population centres, Glenorchy, Launceston and Burnie. In conjunction with the company Nortel there was significant discussion regarding the pursuit of similar ICT-based growth strategies as were evident in New Brunswick and Ireland.

Also around this time there was a general inquiry into the economic development of Tasmania, headed by the former Senator and Minister for Transport, Peter Nixon. The

University of Tasmania was encouraged to make submissions to this inquiry, and in conjunction with an industry advisory group, 'Towards 2010', developed proposals in the areas of an electronic commerce industry advisory centre, a centre for mineral exploration, a centre for food and agricultural science, and a centre for attracting and supporting international students. In the last quarter of 1996 the electronic commerce centre proposal was accepted as a viable option by the Department of Premier and Cabinet, and was jointly developed between the University and the Information Strategy Unit. When the Regional Telecommunications Infrastructure Fund became available through funds from the first sale of Telstra and the Networking the Nation fund, the Tasmanian Electronic Commerce Centre proposal was submitted and received support from the RTIF in mid-1997. The TECC was then established in about the third quarter of 1997 as a not-for-profit proprietary company, and the University of Tasmania and Tasmanian Government as the equal share holders. The Editor of the Examiner Newspaper, Rod Scott, was appointed as the Chair of the Board of the TECC, and Professor Peter Dowling, Dean of Commerce, was appointed as the University's representative on that Board.

The TECC undertook an active role in the raising of electronic commerce awareness across Tasmanian industries, and the funding of lead projects in the development of demonstration electronic commerce projects through a competitive grant scheme. The School of Information Systems actively collaborated with the TECC through engagement in market activities of mutual interest, the placement of Honours, Masters and PhD students in TECC projects, and the sharing of research findings with the TECC, and sitting on a number of TECC committees and boards. The TECC funded a research position in the School of Information Systems at the University of Tasmania and Dr Paul Turner was appointed as Senior Research Fellow in August 2000. Dr Turner also worked with the TECC as Research Fellow on a part-time basis. In addition, the TECC funded scholarships of AU$6,000 per annum for several years, the provision of case study and promotional material to the School, active promotion of the School's interests and the appointment of a number of PhD students as full and part-time staff members.

When the Liberal Rundle Government was replaced by the Labor Bacon Government in 1998, there was some period in which the ICT initiatives of the previous government were being reviewed. The Department of Economic Development then undertook a number of Industry Audits, including the Tasmanian ICT industry. These audits provided a snap-shot of the state of each industry, and some bases for future directions of each industry. At about the same time a number of industry councils, including the IT Industry Council, were appointed by the Premier. These Councils were then regarded as the peak industry bodies by the Tasmanian Government. There was some initial tension with a body that had been established by the previous government, the TasIT committee, which had a similar status, but was smaller and less representative.

The ICT Industry Audit provided the basis for informing Senator Brian Harradine during the debate regarding the second sale of Telstra, and led to the Intelligent Island funded. In total that was approximately AU$170 million, and covered a broad range of initiatives, but specifically there was AU$40 million marked for the development of the Tasmanian ICT industry, and was to be administered through the newly appointed Intelligent Island Board, chaired by Neville Roach, the CEO of Fujitsu Australia. There was a general recognition of the limitations of this amount of funds to achieve real change in Tasmania. However, there was a determination to achieve a sustainable outcome through the active engagement of industry partners, a desire to raise at least a number of Tasmanian ICT companies to a national and international level of competitiveness, and to maintain equity across the Tasmanian society by both social status and regions.

The IIB engaged the Allen Consulting Group to produce a strategic plan for the Intelligent Island program based on six different directions, including a major centre of excellence (AU$20 million), the establishment of an ICT incubator (AU$7 million), the improvement of ICT skills in Tasmania (AU$3 million), the attraction of ICT investment to Tasmania (AU$4.5 million), the development of the ICT industry in Tasmania (AU$5 million), and the promotion of related initiatives, such as network infrastructure (AU$0.5 million). There had been a commitment under the national Building on Information Technology Strengths (BITS) program to use part of the IIB

funds to establish an ICT incubator in Tasmania, and so this program was approved fairly early and established in conjunction with the University of Tasmania in Sandy Bay.

The IIB had a small secretariat and all of its operations, including all of its Board operations, were funded out of the interest earned from the IIP Fund, so the Board was surprisingly frugal in the way in which it actually operated given the amount of money it was dealing with.

The principal business of the IIB was concerned with the centre of excellence. A subcommittee was established to review potential areas of interest in Tasmania, to assess the potential for industry investment and sustainability, and to bring a proposal to the Board. This subcommittee considered the areas of Health Informatics, BioInformatics and a number of other areas of lesser degrees of interest. The Board engaged a scientist to explore the area of BioTechnology for a year, and to report on the potential for industry partners, but did not receive a favourable outcome.

The IIB had a limited lifetime under its terms of appointment, and eventually recommended the establishment of a Centre of Excellence in the area of Health Informatics, to be jointly administered with the University of Tasmanian. Unfortunately, subsequent to the Board's termination, negotiations over the terms and conditions of this Centre broke down and it was not established. Instead the State and National Governments met and divided the remaining IIB funds between the Market Access and Partnership Program (MAPP) industry development funds that were administered through the Department of Economic Development, and the relocation of CSIRO ICT Centre to Tasmania.

Concurrent with the lifetime of the IIB, the TECC was selected to administer a Business Development Fund, that involved calling for submissions for ICT-based proposal from industry that had a strong connection with the Telstra Broadband Lab (B-eLab) in Launceston. There were approximately quarterly funded rounds of this Fund, and typically two to three projects funded in each round.

The main outcomes of that period of ICT investment in Tasmania may be summarised as:

- The raising of the status of the ICT industry within Tasmania. Consideration of directions for the ICT industry in Tasmania certainly reached greater heights in Tasmanian society than at any previous period;
- The raising of ICT skills and knowledge in Tasmania, through greater University and TAFE enrolments, greater use of computers in schools, training of teachers in ICT use, and business development by the TECC and Department of Economic Development;
- The raising of a number of local ICT companies to a level at which they were able to successfully compete at a national and international level;
- The attraction of a limited number of new ICT companies and initiatives to Tasmania;
- The creation of a number of government and semi-government bodies with an ICT focus, including the TECC, E-magine in the Department of Education, and the ICT Incubator;
- The provision of local employment for an increased number of locally trained and qualified people in the ICT and related industries.

Chapter Five – Findings

5.1 Introduction

This chapter presents the findings of the analysis as described in Chapter Three. Analysis of the data, and specifically the development and interpretation of the causal diagrams, has led to the identification of the themes that are presented in this chapter. Under each theme one or more relevant causal diagrams are presented, then the relevant concepts and their relationships are identified and discussed. Quotations are provided to support and illustrate the interpretations of the causal diagrams. The inclusion of quotations is intended to emphasise the grounded-ness of the findings in terms of being faithful to the transcripts, and the views and perspectives evident in those transcripts. This technique is also used to enhance the external validity of the interpretations and to increase the reader's confidence in the findings (Eisenhardt & Graebner, 2007; Miles & Huberman, 1994). The quotations are referenced using the interviewee's assigned letter code (see section 4.2.1), followed by the line number/s in the transcript.

The research questions being address by this research include:

RQ 1: What are the input factors and perceived outcomes in a selected range of nationally funded ICT development programs in Tasmania over the period 1996 to 2005?

RQ 2: What are the relationships between these input factors and perceived outcomes in this selected range of nationally funded ICT development programs in Tasmania over the period 1996 to 2005?

Research Question 1 is addressed by the development of causal diagrams that explicitly show the causal relationships between the input factors and the perceived outcomes, as narrated by the interviewees. The extensive nature of the development of these causal diagrams across the transcripts of all interviews is demonstrated in Appendix E, and selected cases of these causal relationships are presented below in this chapter.

Research Question 2 is addressed through the mapping of the relationships present in the causal diagrams, and by critically analysing these causal diagram across multiple cases.

5.2 Social Good

In announcing the membership of the board to oversee the Intelligent Island Board, the then Minister for Communications, Information Technology and the Arts, Senator Richard Alston framed the ICT investment programs for Tasmania in terms of it being the delivery of a 'social bonus' for Tasmania: "The Commonwealth Government is confident that the Telstra Social Bonus programs will deliver substantial benefits to the people of Tasmania" (Alston, 2000a, para. 5).

The Tasmanian Rundle Liberal Government's policies to develop the economy were characterised by Interviewee F as being a "… very strong social policy program where they were trying to raise … the capabilities of Tasmanian economy …" (F: 46-48), and they noted that the policies were "… very far sighted …" and that "… there was a feeling of social goodwill and a desire to build up social capital that accompanied it" (F: 157-158).

5.2.1 Vision for Tasmanian Economic and Social Development

The following three diagrams show that the various aspects of economic and social development; education and ICT skills, efficiencies in government processes and service delivery, and long-term planning for industry development within Tasmania, were being developed concurrently.

Whole of Government Approach to ICT

Although there had been significant investment in IT between the late 1970s and early 1990s, there had been little effective coordination of the programs. The advent of the Internet and the World Wide Web provided the means by which they could network government agencies. At the same time initiatives by the Federal Governments, such as the Office for Government IT (OGIT), and the recognition that they needed to take a 'Whole of Government' approach to implementing a commonality of standards and

practices across its enterprises, led the State Government to establish a taskforce called the Information and Resource Management Taskforce whose role was to develop a strategic approach to further ICT development within government agencies and enterprises.

An outcome of OGIT was the Government Information Technology and Communications contracting framework that provided the basis for procurement of ICT products and services by government. This was adopted by all Australian State Governments, including the Tasmanian State Government.

Figure 1 illustrates the adoption of standardised and integrated approaches to ICT management at a Whole of Government enterprise level. Ross, Weill and Robertson (2006) suggest that standardisation and integration are essential processes in the transition from Stage 1 Business Silos to Stage 2 in the Enterprise Architecture Maturity Model (EAMM). This is consistent with a movement towards a Unified approach to ICT management in the enterprise Operating Model (Weill & Ross, 2004), indicating that Whole of Government (WoG) is at the Level 2 stage of maturity on the EAMM scale.

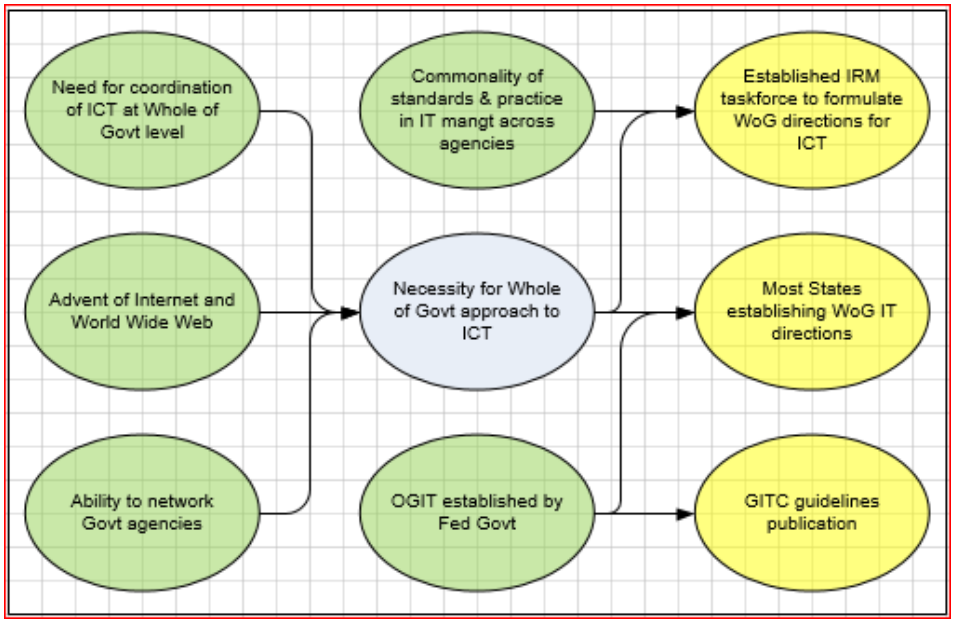

Figure 1. Whole of Government Approach to ICT

The relationships are supported in the following extracts:

"… while there had been considerable investment *[by the Tasmanian State Government]* in IT over the preceding 15 odd years, it was not every well coordinated …" (F: 9-10)

"… the advent of the Internet and the need to network government agencies was really necessitating a whole of government approach …" (F: 11-12)

[The Tasmanian Government] "… established a taskforce that was called the Information and Resource Management Taskforce that was driven out of the policy departments of Treasury and Premier and Cabinet to formulate a general direction for future IT development." (F: 12-15)

"… the Tasmanian Government decided to follow the same pattern that other state governments has followed in terms of setting up whole of government IT policy frameworks …" (C: 22-24)

"… the need to have whole of government policies in place in order to be able to outsource infrastructure and so there was pressure coming from the Feds in terms of that type of direction …" (C: 58-60)

".. the whole of government strategy … which includes a vision for where the government's got to be in five and ten years' time in terms about where it wants its communities and businesses to be, but also in terms of where it wants its own business services, business efficiency and back end administration systems to be." (D1: 128-130)

Establishment of Industry Councils

The Tasmanian State Government conducted audits of a number of industries, including an 'ICT industry audit', to provide a comprehensive assessment of the capability of the Tasmanian industry and to identify the opportunities and constraints to economic growth. The formation of industry councils was one of the recommendations of the audit, including an Information Technology Industry Council (DTF, 2000).

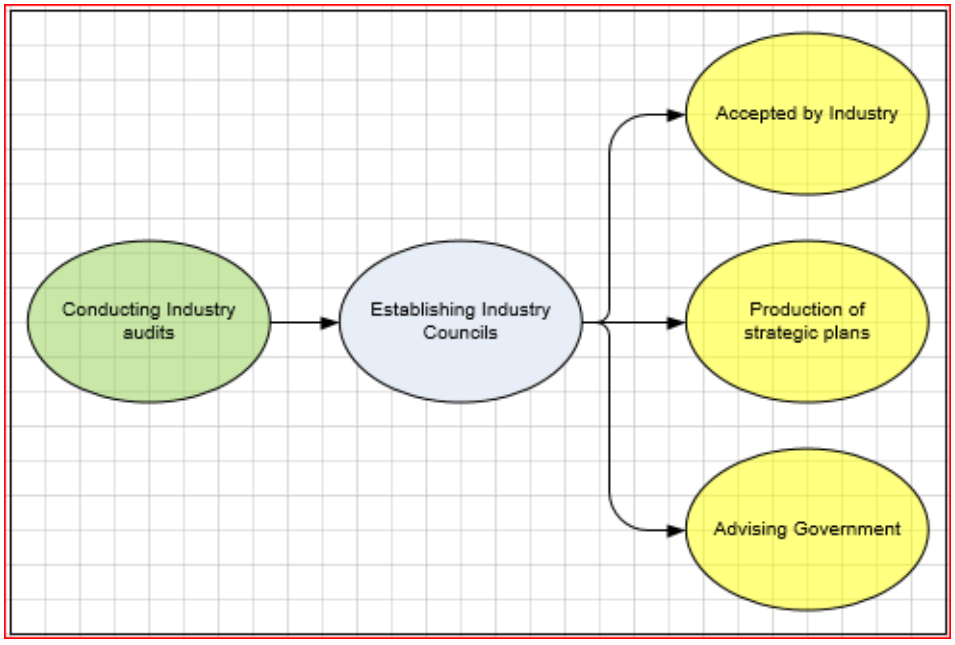

Figure 2. Establishment of Industry Councils

The processes in Figure 2 illustrate that the Tasmanian IT Industry Council's initial task was to produce a strategic plan for the Tasmanian ICT industry. It also provided advice to the Government, both State and Federal. Each of the industry councils were established with the purpose of creating active liaison between the respective industry participants and the Tasmanian Government, the development of strategic plans that were specific to the long term outcomes of that industry, and providing a channel of information and advice on industry trends and developments, direct to the respective Minister in the Tasmanian Government.

These causal relationships indicate the process of gathering information from industry audits in order to inform the Tasmanian Government and provide input to ICT strategic planning at the Tasmanian state level. Within a wider context there would also be a feedback loop in which the funding bodies iteratively refined these strategic plans based on feedback to industry and gathering of further input from the key industry bodies. However, this was not explicitly stated in the interviews.

The relationships are supported in the following extracts:

"… the Industry Audits which were initiated by the Government to understand … what's happening in Tasmania …" (G: 12-14)

[The Industry Audit] "… was very effective and it was very well regarded …" (G: 15)

"… the *[IT]* Industry Council was to set up … to create an ICT Strategic Plan." (G: 25-26)

"… the IT Audit …formed the basis for the response to Canberra …" (C: 49-50)

[The IT Industry Council would provide] "… advice to the Government as to what we need to do to help the industry progress." (G: 22-23)

"… there was an IT Industry Council that was developed that helped bring the industry together …" (E: 177-178)

Computers in Schools Initiative

In the early 1990s there was recognition across the Australia that the education systems would need to provide their students with skills in the use of information technology. The Tasmania State Government initiated a Computers in School program to address this need (see Figure 3). The major portion of the funding for the program came from the Australian Government through the second part sale of Telstra, as well as Telstra's agreed contribution of AU$5 million.

The Computer in Schools program was specifically focussed on enhancing the ICT skills and awareness amongst school students and teachers. While this would have immediate outcomes in terms of creating ICT-aware students and lead to greater efficiency in information discover and delivery in the classroom, it was also a strategic initiative in that it prepared school students for greater adoption of ICT in their future careers. In some projects, such as the Intelligent Island Board, this was also seen a demand-creation initiative (Allen Consulting, 2000), to boost future demand for the delivery of online services and ICT-enabled business (DCITA, 2005).

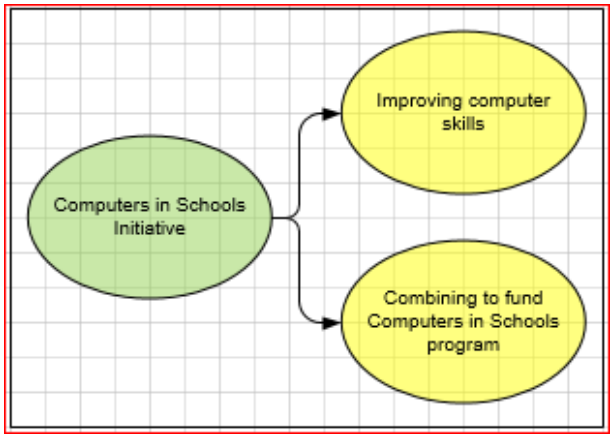

Figure 3. Computers in Schools Initiative

The relationships are supported in the following extracts:

"Alston's office agreed to it. ... I mean it improved the ... people at the high school level, and at primary school level ... you know, before they go onto University and improved their computer skills ..." (A: 247-262)

"… Telstra agreed to put AU$5 million into the connection of the computers in schools …" (A: 272)

"The *[Tasmanian State Government's 1997]* direction statement was quite broad; it foreshadowed significant investment in IT in schools to bring the ratio of PCs to up around six students to a PC. … I think it was about AU$20 million invested in schools alone and that attracted several large suppliers to consider having some base in the state." (F: 159-164)

5.2.2 Creation of the TECC

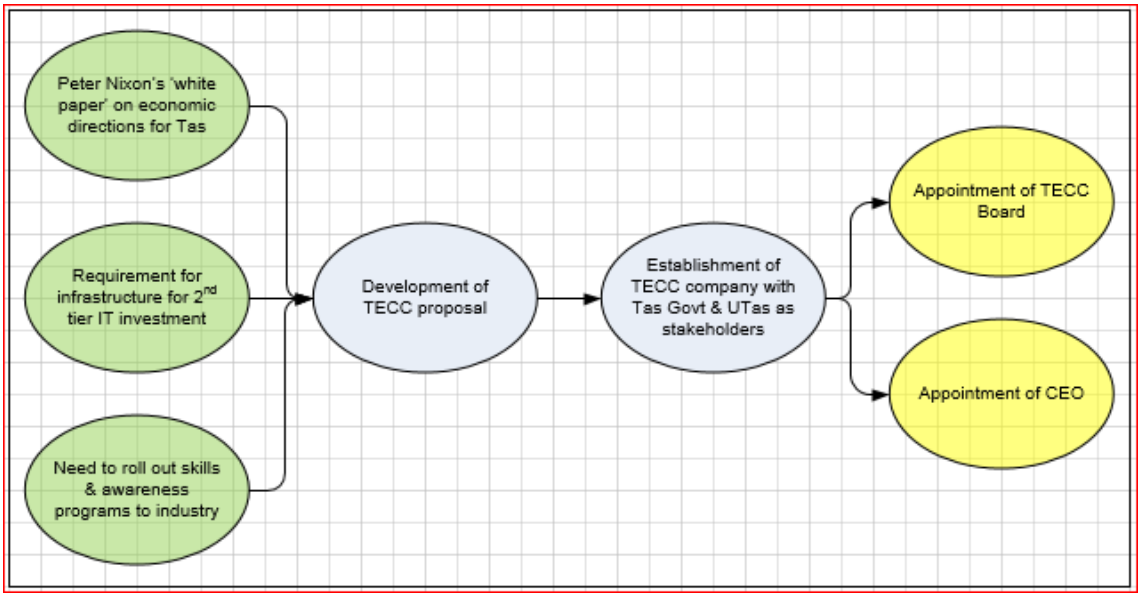

Figure 4. Creation of the Tasmanian Electronic Commerce Centre

The initial impetus for the creation of the Tasmanian Electronic Commerce Centre (TECC) came from The Nixon Report: Tasmania into the 21st Century; Report to the Prime Minister of Australia and the Premier of Tasmania (Nixon, 1997), written by a former Australian Federal Minister for Transport. However, as indicated in Figure 4, the TECC was the result of the convergence of many factors, including the growing awareness of the disparity between metropolitan and regional businesses' exposure to and capability of implementing newly emerging online technologies, and the need to provide the infrastructure for a second tier of IT investment.

The TECC proposal was targeting at utilising ICT to redevelop the infrastructure in Tasmanian industry. Specifically this was to be achieved through skills development, ICT knowledge transfer to industry, and through the funding of demonstration projects in e-business. Within this fragment of the causal diagram, the immediate outcomes were the establishment of the organisational structure of the TECC.

In 1997 the TECC was incorporated as a not-for-profit company, with the Tasmanian State Government and the University of Tasmania as equal and sole shareholders. A board and a CEO were subsequently appointed.

The relationships are supported in the following extracts:

"Peter Nixon … was engaged to develop effectively a white paper, on future directions for economic development within Tasmania." (F: 71-73)

"… the proposal that led to the TECC was formulated in the second half of 1996, but … there were several things that really prepared for this within the Tasmanian context …" (F: 6-8)

"… the TECC was a good example of the infrastructure required for the second stage IT investment …" (F: 256-257)

"… the TECC … was set up to do is to overcome the disparity between regional and metropolitan businesses in terms of their exposure to and capability of embracing new online technologies and activities …" (D1: 12-15)

"… early 1997 an incorporated not for profit company *[the TECC]* was set up with the University and the State Government being the shareholders, *[and]* a Board was appointed …" (F: 179-181)

"…TECC would provide the infrastructure that would lead to IT uptake and industry development and maybe the possibility of attracting new industry to Tasmania beyond that three year timeframe. That particular mission was described several times by Department of Premier and Cabinet (DPAC) prior to the establishment of the TECC." (F: 448-451)

5.2.3 Change of Government

On 14 September 1998 there was a change of the Tasmanian State Government when a Labor Government, led by Premier Jim Bacon, replaced the former Liberal Government, led by Premier Tony Rundle. The new Government's response to the ICT momentum created by the previous government was to commission the report *Tasmanian Industry Audits – A Shared Vision* (DSD, 1999), which provided a comprehensive audit and review of the state's industry base.

The new Government continued with the majority of the programs that arose out of the Directions Statement (Rundle, 1997) including the TECC, computer in schools and on-line access program. However, a number of senior policy writers either left or were moved from their positions and this resulted in a shift of ICT policy development from a strategic, social focus, towards a project management orientation. There was also a notable disengagement of the Department of Premier and Cabinet, and the Department of Economic Development (F: 174-175 and F: 177-178).

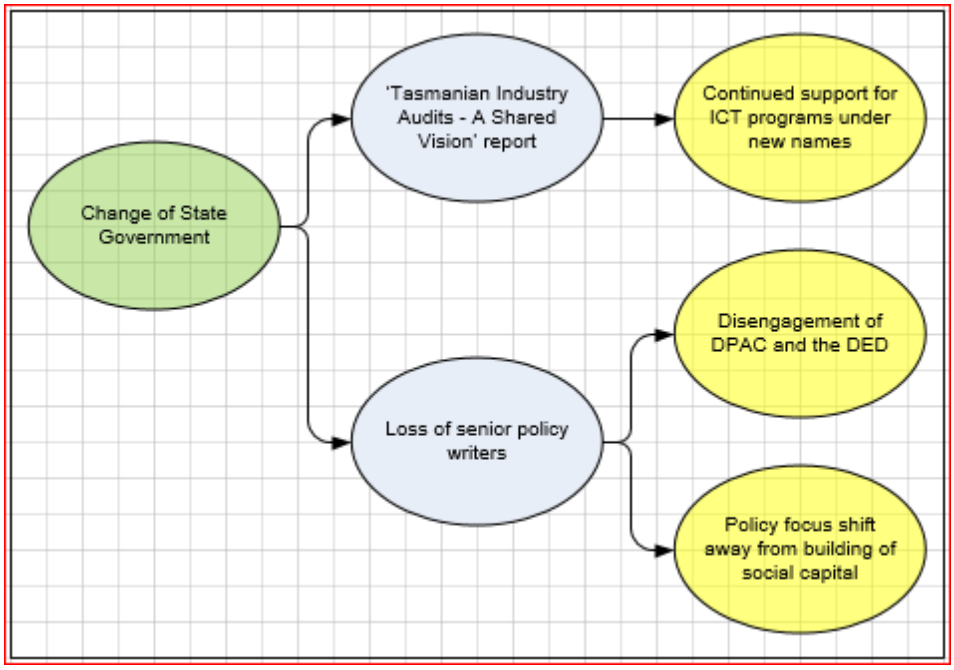

Figure 5. Change of Tasmanian State Government

These causal relationships shown in Figure 5 refer to specific outcomes of the transition of the Tasmanian Government from the Liberal Rundle Government to the Bacon Labor Government, and the related changes in direction at the ICT policy level in the senior executive of the Tasmanian public sector. An impact of these changes in government-lead ICT directions was the development of a greater focus on enhancing the ICT industry through the ICT industry audit, and subsequently the establishment of the Intelligent Island Board.

The relationships are supported in the following extracts:

"… when the Rundle Government lost power … the incoming government really needed to react to this ICT move …" (C: 41-44)

"… Bacon Government then conducted what was called the IT Audit …" (C: 49)

[The incoming government] "… picked up threads of the direction statement under another name so PCs in education was continued, support for the TECC was continued and there were a number of other initiatives that flowed on." (F: 171-173)

[Following the change of government] "… many of the good policy writers in DPAC either left or were dismissed …" (F: 173-174)

[Following the change of government] "… the focus upon policy development and upon building up social capital dissipated pretty rapidly …" (F: 174-175)

[Following the change of government] "… the engagement of both DPAC and the Department of Economic Development was not very animated." (F: 177-178)

5.2.4 Creation and Funding of the Intelligent Island Program

At the time that the Australian Federal Government was attempting to pass the legislation for a second part sale of Telstra, the Independent Senator from Tasmania, Senator Harradine, held the balance of power in the Australian Senate. With the legislation having passed the Australian House of Representatives, the Tasmanian Senator's vote was needed to pass the legislation. During the Federal Government's negotiations with Senator Harradine, the office of Minister for Communications, Information Technology and the Arts, suggested a package to assist Tasmania in the area of information technology or telecommunications development.

Senator Harradine's response to this proposal was based on the Tasmanian IT Industry Council's ICT Strategic Plan (IT Ind Council of Tas, 2000), as it provided the detailed background information needed for the negotiation. The initial offer from the Federal

Government was AU$20 million, however Senator Harradine was able to gain an increased offer of AU$40 million to be funded over 5 years. This provided the finances to fund the Tasmanian IT Industry Council's ICT Strategic Plan.

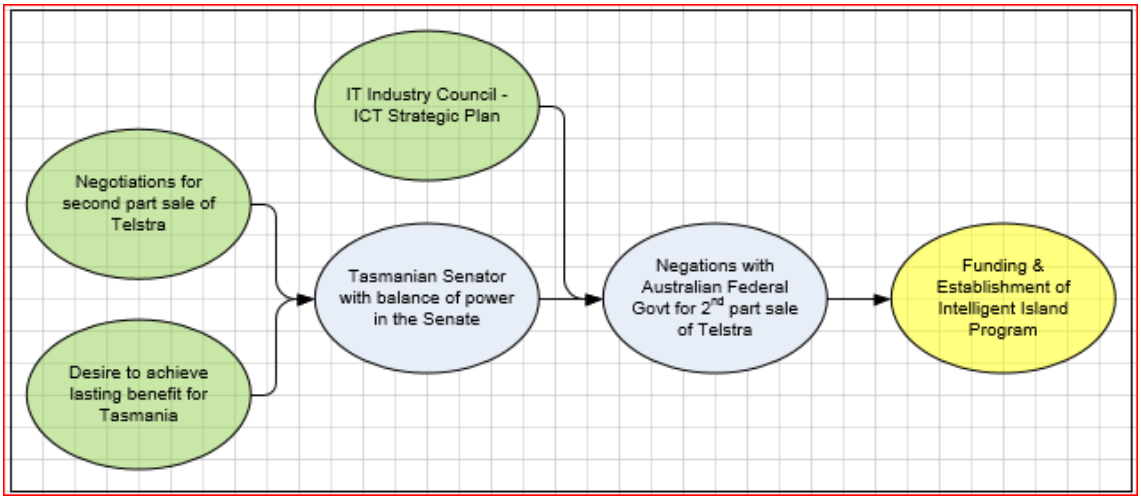

Figure 6. Creation and Funding of the Intelligent Island Program

Figure 6 illustrates the flow of events that lead to the funding and establishment of the Intelligent Island Program. The actions of the Tasmanian Government in undertaking the ICT industry audits, and of the Tasmanian IT Industry Council in developing its Strategic Plan provided the necessary input to support the negotiations by Senator Harradine around the sale of the Telstra, and the attraction of ICT industry funding for Tasmania.

The relationships are supported in the following extracts:

"… when that legislation *[second part sale of Telstra]* came before the Senate it was coming down to Brian's vote …" (A: 57-58)

[Senator Harradine was] "… in a position *[holding the balance of power in the Senate]* to do quite a bit of work on ... getting an advantage for the state …" (A: 57-58)

[As part of the negotiations, the office of Minister for Communications, Information Technology and the Arts, suggested] "… that if we had any ideas that might assist Tasmania in the information technology or telecommunications area then they'd be willing to listen." (A: 59-60)

"… we looking for ideas *[in response to the Minister of DCITA's offer]* and we responded to that audit because it seemed like a good idea at the time, because it has been discussed by people in the industry and people that knew better than we did, and here was a ready source of ideas." (A: 274-277)

"We boosted up the funding *[for the Intelligent Island Program]* from the initial request of AU$20 million up to AU$40 million so that it was really so that it would be spread out over 5 years instead of 3 to give it the best opportunity." (A: 103-105)

"… one of the issues about building the Industry Fund is how is this all going to happen? So then along came the Intelligent Island Fund." (G: 27-28)

5.2.5 Computers in Schools

During his negotiations with the Australian Federal Government for the second part sale of Telstra, Senator Harradine was aware of the Tasmania State Government's proposed Computers in Schools program outlined in the 1997 Direction Statement.

Senator Harradine was able to secure AU$5 million of funding for connectivity for the Computers in Schools program from proceeds of the sale of Telstra, and a further AU$15 million from the Federal Government to fund procurement of equipment and services for the program.

The direct outcome of the Computers in Schools program was envisaged as being an increase in the PC-to-student ratio, the up-skilling of teaching staff, and an increased investment in the school's ICT infrastructure, particularly in the provision of computer networking (DCITA, 2005).

Figure 7 is an elaboration of the causal diagram shown in Figure 3, and deals explicitly with the expected outcomes of the Computer in Schools program, and with investment in ICT infrastructure for Tasmanian industry.

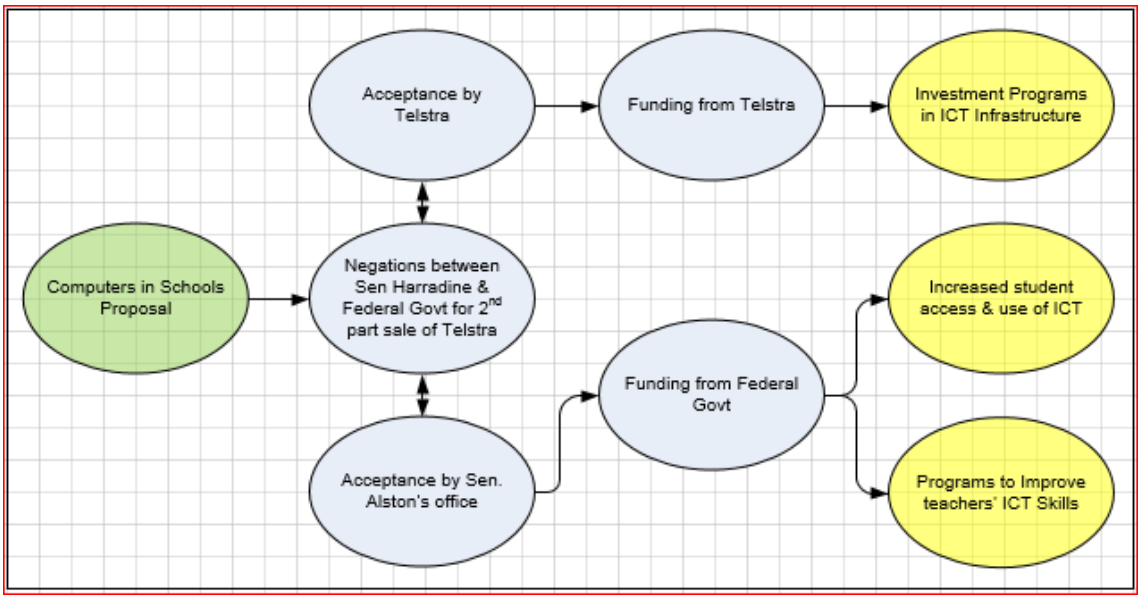

Figure 7. Computers in Schools Program

The nature of the causal relationships shown in Figure 7 is also indicative of more general trends in regional ICT funding in Tasmania over the time period of the late 1990s:

- There was an emphasis on establishment of program, with less focus on delivery of outcomes. This emphasis is evident in the 1997 Directions Statement (Rundle, 1997) and the Tasmanian IT Industry Council's Strategic Plan (IT Ind Council of Tas, 2000), but less so in later documents produced by the Intelligent Island Board;
- Visionary ICT projects that were not demand-driven, but were part of the ICT demand-creation initiative of the Tasmanian and Federal Governments. This had implications for the achievement of this vision and the transition to demand-driven environment. The justification of the roll-out of broadband, and later high-speed, fibre optic networking was limited by inability to establish a sound business case, based on demonstrable demand for networking services that require such bandwidth. Specifically a proposal to support the installation of fibre optic concurrent with a roll-out of gas pipelines throughout the major population centres in Tasmania was not endorsed by the Tasmanian Cabinet.

The relationships are supported in the following extracts:

[The] "… idea that came up from the State Government *[was]* to get computers into schools …" (A: 247-248)

"The direction statement was quite broad; it foreshadowed significant investment in IT in schools to bring the ratio of PCs to up around six students to a PC." (F: 159-160)

[The Computers in Schools program] "… was looking at up-skilling teachers, so a lot of teachers were put through Windows courses at that stage. (F: 161-162)

[The Bacon] "… Government still want to put computers into schools and they'd put that on the table for us ... and … Alston's office agreed to it ..." (A: 250-253)

"… also Telstra agreed to put AU$5 million into the connection of the computers in schools …" (A: 272)

5.2.6 Principles

Senator Brian Harradine brought a set of moral, ethical and religious principles with him in his negotiations with the Australian Federal Government for the part sale of Telstra.

The Senator believed that the majority of shares in Telstra should remain in public ownership, with a maximum of 49% being in private ownership. He also believed that the users of the online access centres should only be able to view 'appropriate material', and that there should be content filtering systems used in schools that would restrict student access to material that would not 'compromise his principles' (A: 168-172).

As a member of the Intelligent Island Board (IIB) that set and negotiated the principles and parameters for the Tasinformatics' Centre of Excellence in Health Informatics and Bioinformatics funding proposal, Senator Harradine was influential in setting the ethical guidelines of the funding proposal that was developed by the IIB. The University

of Tasmania rejected the funding proposal for the Centre on the basis that the ethics clauses would negatively impact its academic and research principles (CoA, 2005a).

During IIB's deliberations regarding the Tasinformatics' Centre of Excellence, Senator Harradine reminded the Board members that the funding had been secured to promote ICT-related developments within Tasmania.

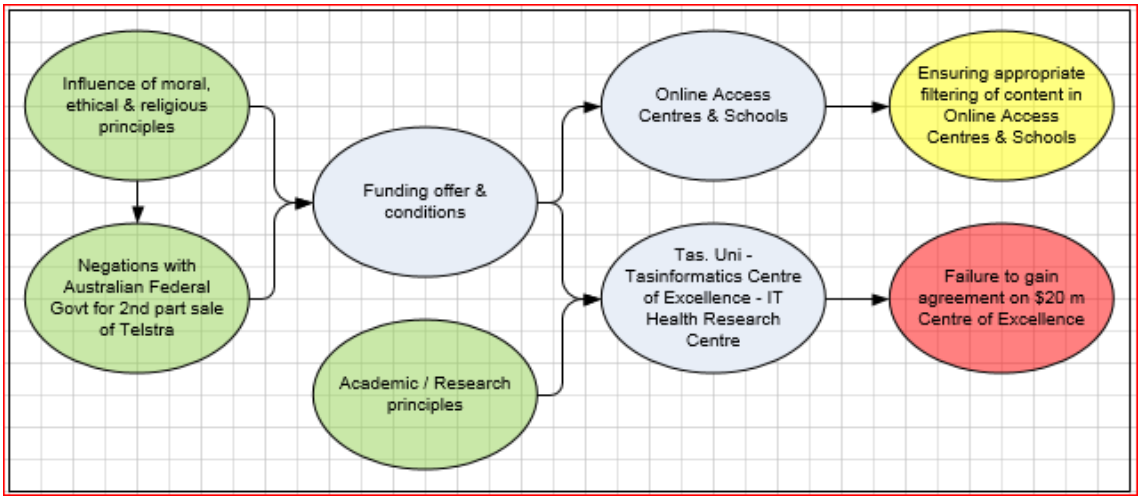

Figure 8. Influence of Principles

The Intelligent Island Board dealt with a number of ethical, equity and social issues in its consideration of the implementation of its funding program. These considerations overlapped with other concurrent developments, such as the establishment of the company NetAlert Limited in 1999 with initial funding from the Federal Government of AU$4.95 million. NetAlert's functions included:

> … providing assistance in lodging complaints with the ABA *[Australian Broadcasting Authority]*, active monitoring of online material, commissioning research and development into technological means to prevent access to overseas hosted Internet content and to facilitate adult verification prior to accessing overseas content. (DCITA, 2007; Graham, 2013)

Figure 8 also illustrates that in addition to ethical and policy matters, the development of ICT-based initiatives such as the Tasinformatics Centre of Excellence proposed by

the Intelligent Island Board, were subject to financial and business outcomes, such as the attraction of industry partners who were willing to invest equity in such ventures, and acceptance by the University of Tasmania.

The relationships are supported in the following extracts:

"No he *[Senator Harradine]* was not going to move beyond 49% *[sale of Telstra]* …" (A: 138-139)

"… he *[Senator Harradine]* wasn't trading anything in terms of his personal principles …" (A: 139-140)

"… he *[Senator Harradine]* wasn't trading any of his own religious, moral, or personal principles, he would never, ever deal on those." (A: 156-157)

"… he *[Senator Harradine]* wanted to make sure that the money that, for instance was going into the online access centres, … only appropriate material was going to be viewed by people." (A: 166-168)

"… the money going into computers in schools, ... if it was opening up access to the Internet, he *[Senator Harradine]* wanted to make sure that the schools had adequate filtering facilities to make sure that there wasn't the remote possibility that opening this technology up to students would compromise any of his principles." (A: 168-172)

"... he's *[Senator Harradine's]* got a passion for pro-life issues … he just would not allow any of that money to be used for anything that might compromise those principles *[within the Tasinformatics' Centre of Excellence]*." (A: 200-201)

"… the University *[of Tasmania]* knocked back AU$20 million because they didn't want to compromise their academic principles, or their research principles …" (A: 176-177)

"… particularly at the time the biotechnology initiative was being considered there was a strong drift towards non-ICT, and I remember at a particular meeting Brian *[Senator Harradine]* bringing the attention of the *[Intelligent Island]* Board back to his ICT motive." (C: 282-284)

"… the money *[for the Tasinformatics' Centre of Excellence]* went to something else, I mean the money didn't disappear, it just meant that the University *[of Tasmania]* didn't take ... well, wasn't able to take advantage of it, and now it's being used for much the same reason as it was originally intended anyway." (A: 197-199)

5.2.7 Equity within Policies

Equity in Tasmania is often viewed as referring to regional equity along the North; South; and North-West divides. However, within the Tasmanian ICT-related initiatives there was a much broader interpretation. Both the Intelligent Island Board (IIB) and Senator Harradine recognised that social equity was also a consideration, and the IIB and TECC framed their deliberations and programs around the need for equity between Tasmania's large and small to medium enterprises.

The practical outcomes of the desire for equity was seen in the decisions made by the various Boards and committees, for example, when deciding on the physical locations of centres, equity of access was seen as a significant factor. Programs were designed to meet the various needs of the different groups, be they business, community, individuals, ICT literate, complete novices, start-ups, small, medium or large well-established businesses, as indicated in Figure 9.

There was also a concerted effort to include businesses and people who were not located in the city centres.

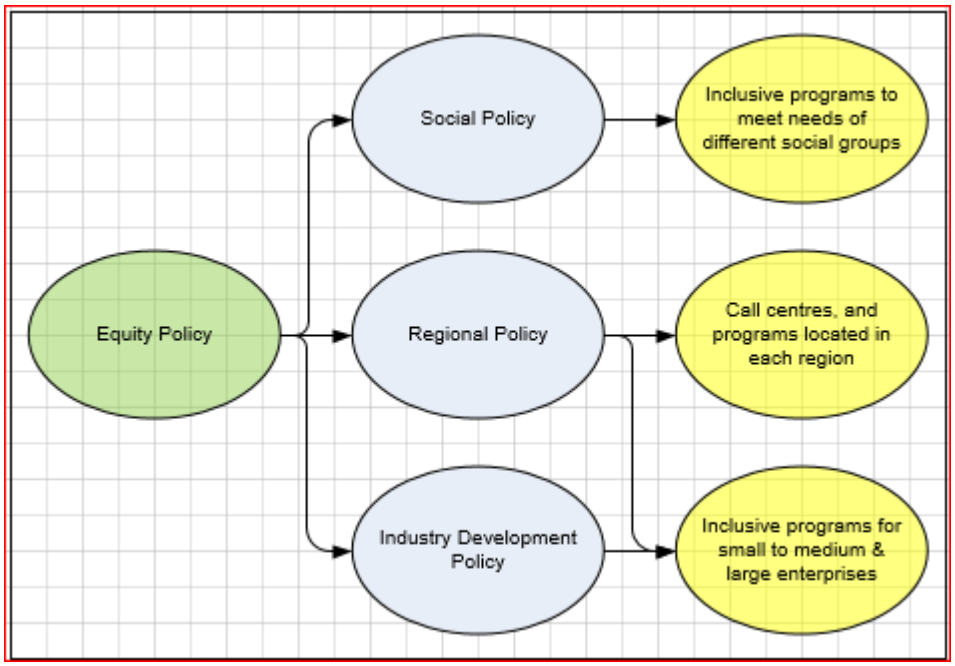

Figure 9. Equity Policies

A focus on the establishment of equity policies within the Intelligent Island Board lead to equity-based outcomes in the areas of social access to the Internet, inclusive policies across all sectors of business, and geographic distribution of ICT initiatives, such as call centres. Around such initiatives as the IIB and the Open Access Centres, there was open and robust public debate about the appropriate directions that Tasmania should follow in the adoption of ICT, across the whole community and business. Part of this debate included consideration of the appropriateness of adopting similar ICT initiatives to those being pursued concurrently in New Brunswick (Rigney, 2003; Rundle, 1997), Ireland (McQuillian, 2000) and elsewhere.

The relationships are supported in the following extracts:

"… Brian Harradine always pushed the need for equity: social equity and regional equity …" (C: 278-279)

"There was also a very strong regional equity policy, so there was a very deliberate policy to establish these call centres in the northern suburbs of Hobart, Launceston, Burnie, maybe one in Devonport, I don't remember." (F: 55-57)

"… some of that *[funding]* was going to online access centres …" (A: 235)

"… social equity and regional equity, both of those we *[IIB]* saw as very important …" (C: 279-280)

"… the Board was always conscious of these backlashes … there was occasionally a North – South backlash …" (C: 209-211)

"… for that reason *[need for equity]* the TECC was initially headquartered in Launceston. It was seen as being more focussed upon small business and as such Launceston was more appropriate than Hobart." (F: 442-445)

"… we *[the TECC]* would go to towns around the state, or community groups …" (E: 94-95)

[TECC's focus] "… always has been *[a state-wide focus]* … the region is Tasmania." (D: 119-120)

"… general awareness raising amongst the business community …" (E: 56)

"… our work *[was]* with traditional businesses, electronic commerce, smart ICT, getting into infrastructure, we do that on a business, community, household and even government services level." (D1: 256-258)

"… it *[TECC]* certainly was state-wide and … apart from having those physical offices there we were out and about visiting places …". (E: 272-274)

5.3 ICT-Related Industry Development

ICT-related industry development was pursued on a number of different fronts. One of the initial 'quick win' programs was the adoption of the 'New Brunswick' model of using call centres to kick start the development of an IT industry (McCall, 1997; Rundle, 1997).

There were other programs that looked to raise awareness of ICT, conduct ICT research, develop ICT skills, fund emerging and speculative ICT projects, mentor ICT entrepreneurs and enterprises, create demand for ICT products and services, and to attract ICT investment into Tasmania.

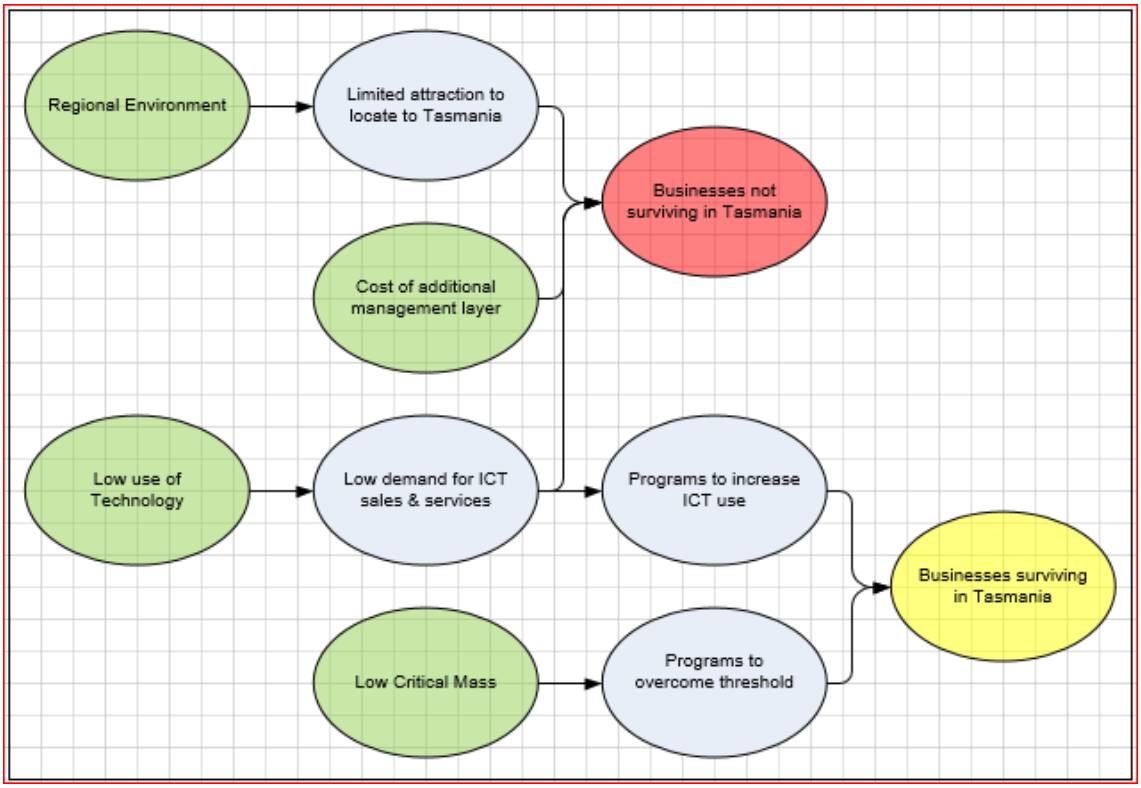

Figure 10. Critical Mass Thresholding

Figure 10 identifies a number of limiting factors in the development of a sustainable ICT industry in Tasmania, including retention of local ICT skills and knowledge, the relatively small population base in Tasmania and its limited growth potential (O'Brien, 2010), and the consequent low demand for supply and maintenance of ICT infrastructure and services. The predominance of small and medium enterprises (SMEs) in Tasmanian industry was a factor in what is referred to in Figure 10 as the "Cost of additional management layer".

5.3.1 Thresholding

A business's ability to survive in a regional environment is the outcome of a complex set of interconnected relationships (Chapain & Comunian, 2010), and although the above diagram is overly simplistic, it does convey the significant issues raised during the interviews.

Breaking through the critical mass threshold is a problem that many businesses face, but this is exacerbated in a regional economy (Feldman, Francis, & Bercovitz, 2005; Spencer, Vinodrai, Gertler, & Wolfe, 2010), particularly in Tasmania where, generally, ICT use is below that of other states. Unfortunately, despite the programs in place to encourage ICT use and to fund ICT-related initials, businesses have left Tasmania due to the lack of a critical mass to allow their businesses to survive in the state.

A related issue that was raised is that as businesses grow, their management structure needs to expand, which adds significant overheads, potentially reducing their efficiency and competitiveness.

Figure 10 and the quotations below illustrate the perceived impacts of business size upon potential for ICT-enabled growth towards achieving an economically sustainable industry in Tasmania. The existence of a threshold of business growth, and the need for financial assistance to get over that threshold, were both common perceptions of the inhibiting factors that limit the achievement of such economic sustainability. There is also an element of technological determinism (Moyle, 2003) in the above quotations that reflect a (stated) belief that the increased adoption of ICT will partly alleviate these inhibiting factors for Tasmanian industry.

The relationships are supported in the following extracts:

"… I guess it is a challenge also to get critical mass in the industry in a regional place …" (B: 77-78)

"The most notable thing about the ICT industry was a number of multi-media companies packing up and leaving the state, simply not being able to survive here." (C: 289-290)

"… the statistics very clearly showed at the time *[Tasmanian industry]* were way behind in their use, uptake and benefits from online technology or even smart business technology, there is a very low penetration of PCs and use of technology in most forms was way down in Tasmania." (D1: 16-19)

"… no one in the industry in Tasmania has got a CEO and a PA. ... everyone is an executive … *[and]* they don't have the time to work on their business." (G: 498-502)

"… a number of companies … got over the threshold, *[although I]* wouldn't say solely due to the injection of funds …" (C: 291-293)

5.3.2 Creating / Encouraging ICT Draw Through

That ICT-related funding would provide a draw-through for local ICT sales, services and skills was almost seen as a certainty; however those interviewed suggested that while this did happen, it was not uniform.

The Computers in Schools initiative and the TECC awareness programs were seen as increasing ICT-related infrastructure sales and services for local suppliers, as well as encouraging interstate suppliers to re-locate to Tasmania. However, it was expected that some of the 'big ticket' items, such as the CSIRO ICT Centre, may not provide much draw through for local ICT businesses.

The higher education institutions in Tasmania had anticipated that as the ICT-related initiatives were established they would experience a draw through of their ICT graduates into these new and expanded industries. However, this was not the reality, with far less draw through than expected. Locating part of Telstra's Research Laboratories to Tasmania was seen as a way of employing local graduates and keeping them within the state, however, the lack of local specialist ICT recruiting agencies

meant that matching skills with requirements was difficult, and was seen as a contributing factor to underemployment of ICT graduates.

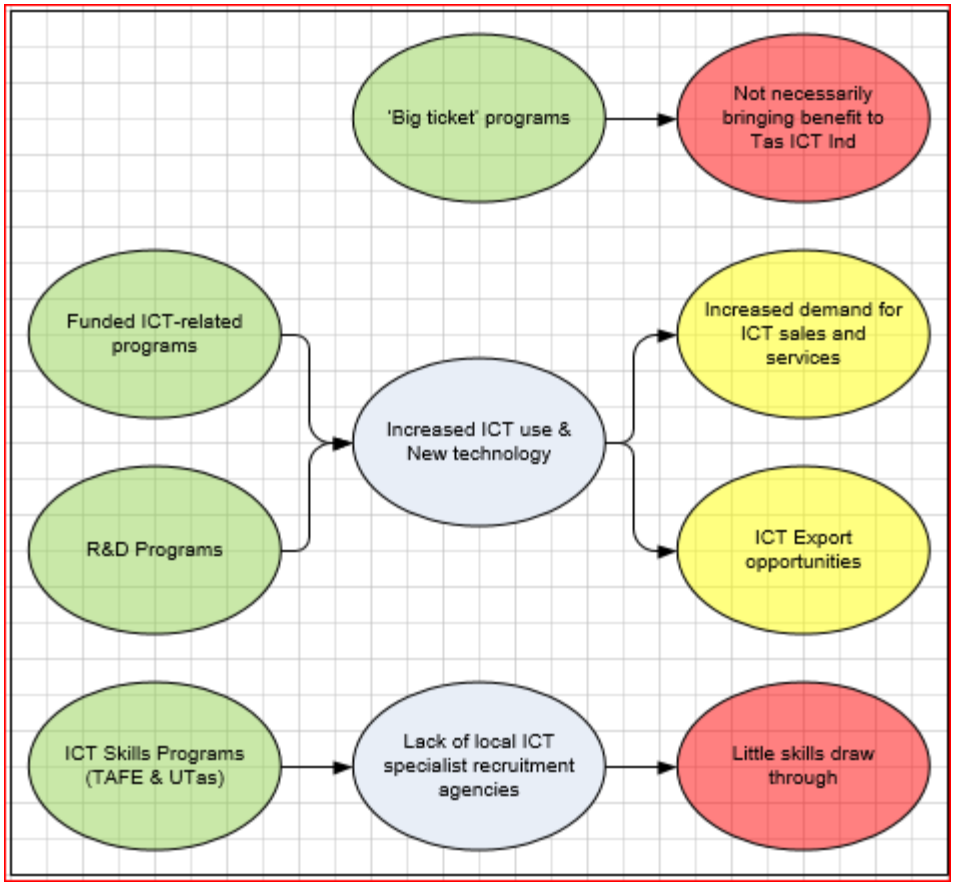

Figure 11. Draw through to Local ICT Industry

Figure 11 sets out the perceived factors for growing the Tasmanian economy, based on greater uptake of ICT infrastructure. The figure deals with the expected outcomes from greater ICT investment and adoption in Tasmania, and the related impact of limited ICT skills and knowledge recruitment on industry developments. As discussed in section 5.3.1, there is an implied sense of technological determinism in the statement of the expected outcomes of greater ICT investment between an increase in demand for ICT sales and services, and greater opportunities for export of ICT-related products and services.

The relationships are supported in the following extracts:

"… raising and broadening local businesses understanding of ICT … the draw through from the ICT industry would follow." (D1: 13-15)

"… there was the computers in schools, there was the development of local suppliers to service computers in schools …" (A: 106-107)

"I think it was about AU$20 million invested in schools alone *[through the Computers in School program]* and that attracted several large suppliers to consider having some base in the state." (F: 163-164)

"The big-ticket items … getting outcomes out of the CSIRO centre … I don't think they'll flow through to the Tasmanian IT industry." (G: 292-294)

"… there was a problem of lack of draw-through *[from TAFE and University ICT training]* to local employment in IT …" (C: 153)

"TRL *[Telstra Research Laboratories]* was one of the flagship industrial R&D organisations in Australia, and bringing that into Launceston I think … *[was]* a bit of a vote of confidence in what Launceston was trying to do in… and bringing some of these new technologies to bear in somewhere other than the big cities." (B: 24-29)

"… hopefully the industry's getting to a point where there can be a local IT recruitment organisation that will have the proper knowledge of the people, because at times there are people available, but it's really hard to get to them ..." (B: 253-255)

"*[Ensuring that]* … export opportunities in this fast growing area *[ICT]* are capitalised on by the state and … *[TECC tried to assist]* develop some new industries in that space." (D1: 28-30)

"… a lot of local IT firms did very well out of … the awareness raising and traditional businesses had become smarter users of technology … . So the local IT firms were a subsequent benefit of it ..." (D1: 60-63)

"The fact is that by running those projects we *[TECC]* created demand at the time which I'm sure helped the growth of local IT industry as an indirect thing …" (D2: 524-525)

5.3.3 Broadening the Tasmanian ICT Industry's reach

Expanding beyond Tasmania, both nationally and internationally, is the long-term goal of many Tasmanian ICT businesses (Steer, 2001). However, as identified above, most Tasmanian ICT businesses lack the management structure, personnel and skills required for expanding beyond their immediate market.

Those Tasmanian ICT businesses that had been able to broaden their reach beyond Tasmania had done so through aligning themselves with, or selling their business to, an existing national business. Others have achieved success with assistance from incubators such as In-tellinc, an IIB initiative, which provide management expertise and mentoring, as well as national and international contacts. They also can take on some of the associated risks, and some of them take some equity in the business.

Figure 12 illustrates a perception of two pathways towards successful business expansion at national and international levels. The first pathway deals with the enhancement of managerial skills, concurrent with the provision of advanced skills and knowledge in commercialisation of ICT products and of ICT contract management, as outcomes of an ICT incubator facility. Such an ICT incubator was established in Hobart under the Intelligent Island program, called In-tellinc (Allen Consulting, 2000, 2003). The second identified pathway towards successful business expansion at national and international levels was identified as alignment with, or take-over by, an existing national business at this level. Both of these pathways were discussed within the context of growing the Tasmanian economy through enhanced exports, based on greater uptake of ICT infrastructure by Tasmanian industry, and the roles that the Intelligent Island

Board may play in funding an ICT-incubator, and creating greater national and international awareness amongst Tasmanian business managers.

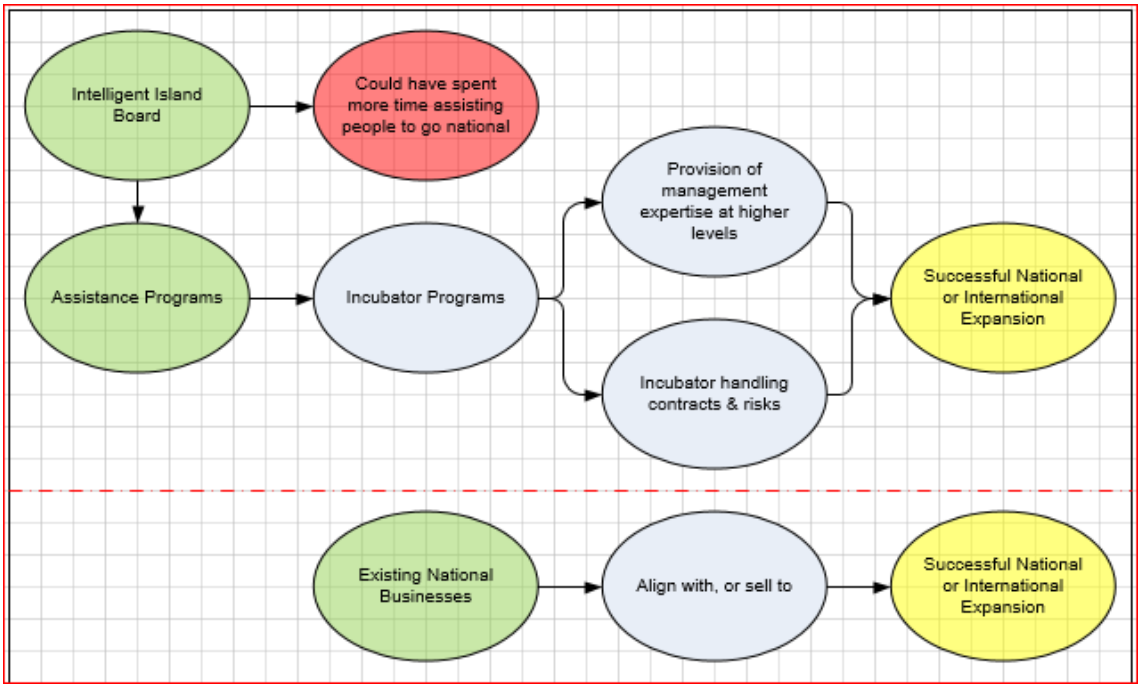

Figure 12. Two Paths Taken to Broaden the Tasmanian ICT Industry's Reach

The relationships are supported in the following extracts:

"We felt that we could do well here but we always felt the hurdle to go national was going to be too great, and the way that we approached it and the way that <named other business> … and the way that a lot of them approached it is to align themselves with a national business." (G: 514-518)

"Very few have actually been able to go national of their own accord …" (G: 519)

"… if you look at the ones who've successfully gone national from nothing, they've come out of the incubator." (G: 529-530)

"… it *[an incubator]* gives you the management expertise at the high layers …and the contacts, and they take on some risks, and they take some equity." (G: 532-533)

"… that might have been something … *[the IIB]* should have been spending a bit more time on, to assist people to go national." (G: 521-522)

5.3.4 Cluster Formation

The ideas behind clustering were quite well understood by those interviewed. However it is apparent from what they said that within the ICT-related industries in Tasmania, the concept was not fully embraced.

A key factor of successful clustering is the drive to gain a mutual benefit (Muro & Katz, 2011; Porter, 1990, 2000), however, the Tasmania ICT-industry, as a whole, still see each other only as competitors, and are not at the point of horizontal integration. At least in part this was attributed to the lack of infrastructure that could assist them in moving away from a 'small pond' mind-set.

There were several attempts made to assist in raising the awareness of the benefits of clustering, including the Launceston Digital Development Forum (LDDF) which brought together the various key players in the ICT area to share information. There were also a number of demonstration projects designed to showcase ICTs role in supporting clusters. One successful demonstration project was the Tasmania Logistics Online (TLO) Project, an initiate of the TECC, which created a central technology hub developed for Tasmania's transport and logistics providers. Another TECC project was the Tasmania Business Online (TLO), a state-wide online trading hub. However, whilst it successfully demonstrated the principle, it was limited due to only a minimal involvement from the Government's purchasing agency (D2: 219-220).

Industry clustering was seen as a critical factor in the development of an economically sustainable industry, especially in the Launceston region, and amongst those business managers who were involved with the Tasmanian Electronic Commerce centre projects, and the Telstra B-eLab in Launceston. The Launceston Digital Development Forum was a series of meetings of like-minded business managers interested in ICT-enabled industry development, and facilitated by the Tasmanian Electronic Commerce Centre.

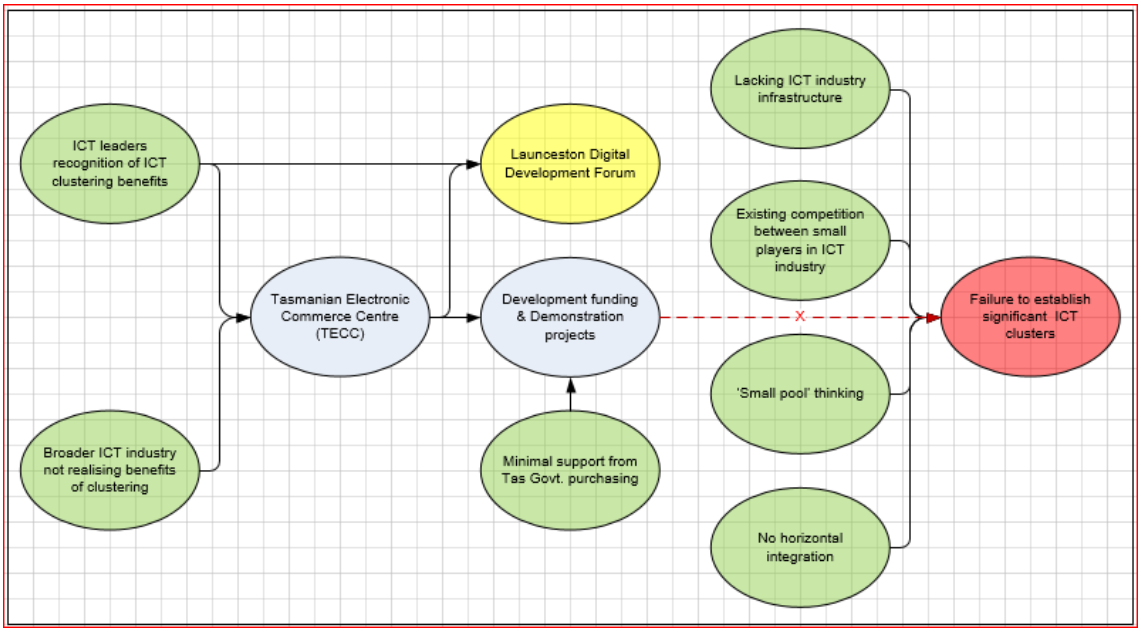

Figure 13. Attempts to Cluster Tasmanian ICT Industry

Figure 13 illustrates a perception of the factors that inhibited the development of economically sustainable ICT industry clusters:

- Lack of infrastructure of an existing ICT industry, including skills and knowledge base, with the region;
- An enhanced sense of competition between existing companies and individuals in the ICT industry, so that competition, rather than collaboration was seen as a dominant mode of interaction;
- "Small pool" thinking, or a lack of vision beyond the immediate, regional business groupings, and a willingness to compete only with other businesses in the same "pool" or regional industry group;
- Lack of horizontal integration between competitive businesses within the same regional business grouping. As discussed above the dominant mode of interaction between such business players is competitive, rather than seeking to establish any form of joint venture or collaboration between such competitors.

Through such initiatives as the Launceston Digital Development Forum, and the Business Development Fund, the Tasmanian Electronic Commerce Centre actively sought to overcome the above inhibitors, and to establish and provide seed funding to businesses and government-funded educational institutions, with the goal of fostering ICT-based industry clusters in the Launceston region. The Launceston Digital Development Fund was particularly successful in facilitating the sharing of ideas between interested business players, and in promoting opportunities for ICT-enabled growth in the local industry, but the reliance upon government funding of new initiatives was strong, consistent theme of both the Launceston Digital Development Forum meetings, and the administration of the Business Development Fund program.

The relationships are supported in the following extracts:

"… there ought to be some seed funding so that a sort of a cluster of new enterprises might spring up from the technology that was developed." (A: 92-93)

"One of the strategies we did with that was to look at the extent to which the BDF engendered ... industry clustering and the result of that was almost not at all …" (C: 396-403)

"… a perception amongst the recipients of the BDF *[Business Development Fund]* funding that they were competitors of one another … everyone at the clustering level was a rival" (C: 397-400)

"… industry hadn't got to the point … *[of]* horizontal integration…" (C: 399)

"… that *[absence of clustering]* was largely due to the lack of industry infrastructure in terms of having companies out there who had the freedom to, well basically to create a vision and push it, and secondly having the infrastructure in which they could move away from this small pool mentality where they were all competing with one another." (C: 400-403)

"… you can have as many meeting to sort of talk about collaboration, but unless you've got something to do together with mutual benefit it doesn't happen …" (B: 434-436)

"The LDDF *[Launceston Digital Development Forum]* I felt was a very positive initiative, it led to bi-monthly forums of interested bodies from around the Launceston region." (F: 460-461)

"… that there were other initiatives that came out of the TECC for example, there was a strong engagement in the latter years with the Logistics Industry and there were a number of initiatives there that at least forged a recognition of the need for eCommerce in logistics and particular linkages with a number of eLogistic providers." (F: 410-414)

"… that was a trading hub called Tasmania Business Online, which is the first taste a lot of people had for getting on line and trading. … we had people transacting which was more than a lot of transaction hubs ever achieved, but the big downfall in all of that was the fact that government purchasing never went online, it didn't go online to any great extent." (D2: 215-220)

5.3.5 Industry and Investment Attraction

In Figure 14 a number of inhibitors that limited the ability to attract external investment in the Tasmanian ICT industry are identified, including:

- The failure of the Intelligent Island Board to establish a Centre of Excellence, specifically to develop the Health Informatics Centre of Excellence proposal to the level of being a viable entity;
- The time of the "Dot Com" crash around the period 2000-2003, and its impact on ICT investment, and the available of an ICT skills and knowledge base to attract ICT investment. The "Dot Com" crash had a major negative effect on University enrolments in ICT degrees, although this effect was deferred by one or two years in Tasmania, when compared to other regions in Australia;
- The lack of joint venture or other form of collaborative investment from business in government sponsored programs in Tasmania;
- The negative recommendations contained in a confidential report to the Intelligent Island Board, that highlighted the limited prospects of the existing

Tasmanian ICT industry to attract external investment, largely related to issues discussed in section 5.3.1;

- A recognition that the amount of funding available through existing funding schemes, including the Intelligent Island Program, and the Business Development Fund, were very limited, and likely to be insufficient to create a sustainable ICT industry alone, or to be able to attract significant external investment.

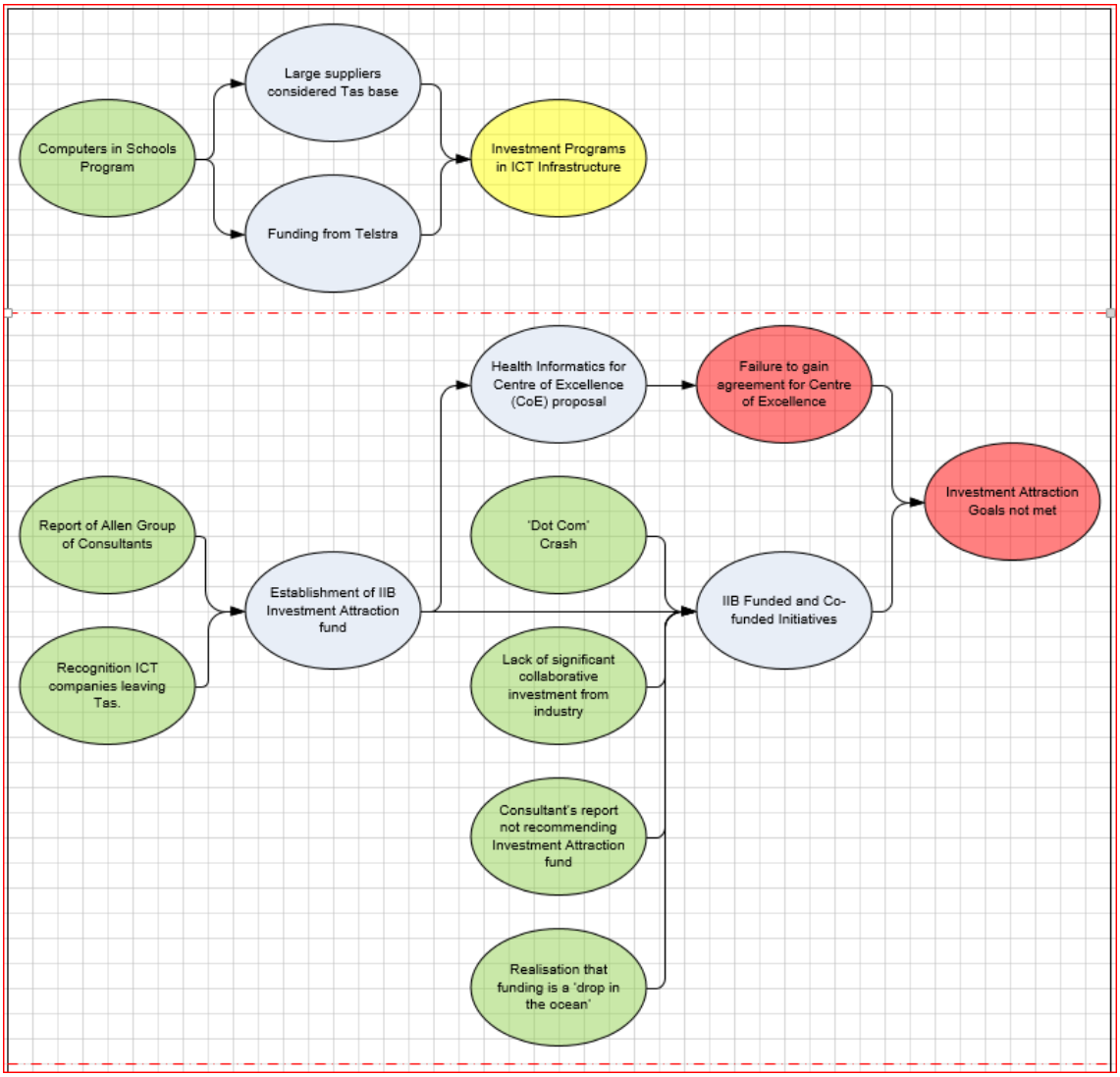

Figure 14. Industry and Investment Attraction (a)

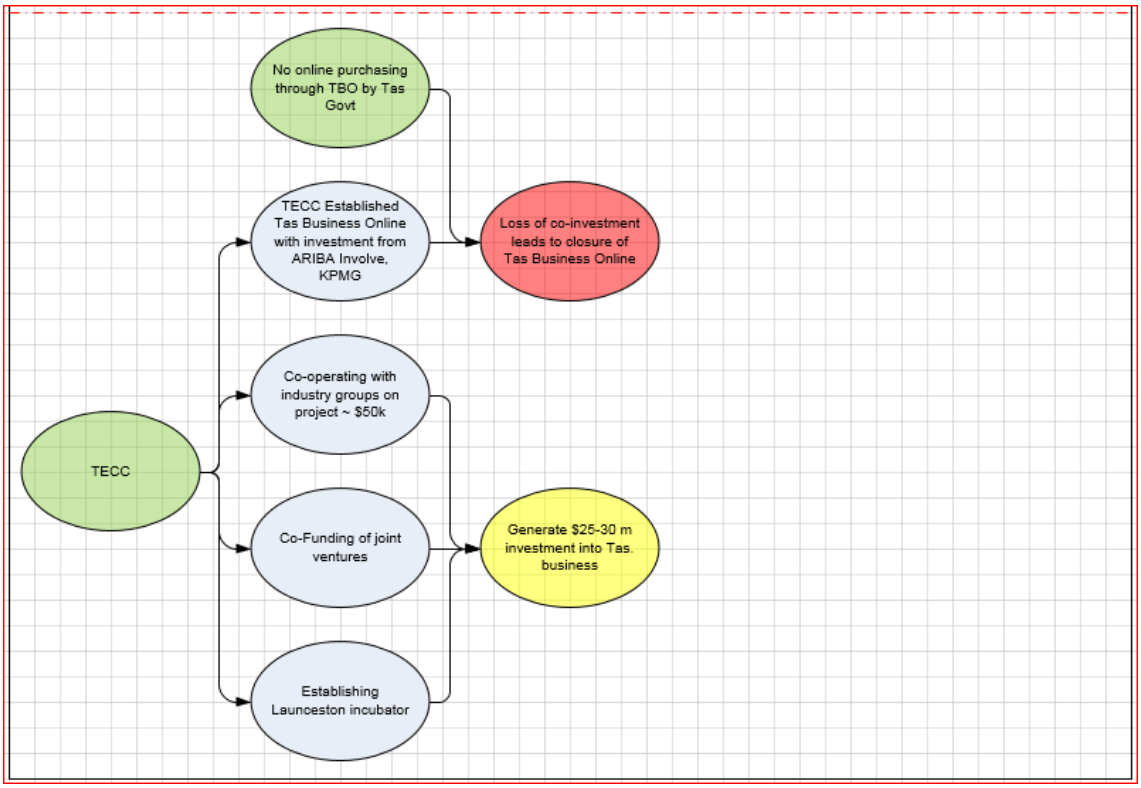

Figure 15. Industry and Investment Attraction (b)

Figure 15 provides an alternative viewpoint of investment attraction for regional ICT investment attraction, particularly in the Launceston region. Namely, that joint ventures with the Tasmanian Electronic Commerce Centre, co-funding of joint ventures between other businesses, and establishment of the Launceston ICT incubator were all means of attracting a degree of external investment into the local ICT industry.

The relationships are supported in the following extracts:

[When Senator Harradine was negotiating the sale of Telstra] "… Tassie was looking for whatever it could do to assist the economy to ... assist in stemming the negative population flow and boosting investment and employment ..." (A: 426-428)

"… the TECC would provide the infrastructure that would lead to … the possibility of attracting new industry to Tasmania … . That particular mission was described several times by DPAC prior to the establishment of the TECC" (F: 448-451)

[TECC is] "… attracting investment and businesses re-locating to put new industries, new services and operating them out of Tasmania …" (D1: 261-262)

"…it was about AU$20 million invested in schools alone and that attracted several large suppliers to consider having some base in the state." (F: 163-164)

"… Ericssons were interesting in investing down here … but Intelligent Island decided to go with Bioinformatics …" (D2: 240-241)

"… on the *[Intelligent Island]* Board there was a realisation that this money *[Intelligent Island Program funding]* was a drop in the ocean, and unless there could be significant collaborative investment from industry, and we are talking about, well at least one for one or may be two for one, that the money wouldn't go anywhere." (C: 165-168)

"… the *[Intelligent Island]* Board was very concerned about … creating a sustainable enterprise, and so it spent a lot of its time seeking to attract investors." (C: 169-170)

"… the *[Intelligent Island]* Board … contracted consultants to develop a strategic plan for the dispersal of the funds and the Allen Group out of Melbourne were contracted to do this. … they came out with a reasonable plan which was to cut it *[Intelligent Island Program funding]* up into six different segments … the allocation *[included]* … five million for investment attraction …" (C: 232-242)

"… it was fairly clear that the small amount of money we *[IIB]* had there wasn't going to make any difference … in fact I remember one consultant's report coming back *[to the IIB]* recommending against continuing with the investment attraction fund because it wouldn't make any difference …" (C: 261-265)

"… the Centre of Excellence went through about three iterations, including one twelve month's operation seeking to attract a biotechnology investor that hadn't been successful, and it was largely this problem of not being able to find collaborative investment …" (C: 266-268)

"… we *[TECC through the Business Development Fund]* funded seven rounds of projects … of that AU$4.7 million we invested … the projects themselves probably added up to about AU$15-25 million …" (D2: 429-431)

"… it *[the IIB]* funded international trade trips and investment trips … The Chairman of the *[Intelligent Island]* Board was … very keen to establish links between Tasmanian industry and the Indian industry … several companies came from India looking for investment opportunities at the time …" (C: 313-320)

"… the 2001 dotcom crash which affected … co- investment possibilities …" (D1: 80)

"I would have to say that's when a key thing with us *[TECC]* became the level of investment that was going on from about '02 to about '05 was pretty poor …" (D1: 160-162)

"… the Intelligent Island Board … *[had]* about AU$5 million for investment attraction and there were a number of other related funds and I think for a number of other reasons … that those goals weren't realised." (F: 424-427)

"I think everyone very early on, very clearly stated we are not going to be using this *[Intelligent Island Program funding]* for miniscule projects we're going to use this for big ticket items to make sure we get the best value out of this thing, and one thing which seemed to disappear over time was that we were going to leverage the funds against investment. (G: 50-54)

5.4 National Demonstration Projects

During the late 1990s Launceston was identified as a regional centre that had a population mix that could potentially have a strongly correlation with other areas within Australia, both regional and metropolitan. The possibilities of this was seen by Telstra who set up their research focused B-eLab in Launceston and conducted a series of user acceptance trials in Launceston.

5.4.1 Regional Focus

As an example of a successful regional ICT-based initiative, the Telstra B-eLab demonstrated the following outcomes, as shown in Figure 16:

- The establishment of a new, sustainable IT business in Tasmania that brought new ICT skills, knowledge and investment opportunities to the Launceston region, and employed a number of local ICT graduates;
- As a valid model for other national organisations, through the establishment of a sub-branch of the organisation with a specific business focus in a regional centre, while still maintaining a high degree of relevance and connection with the parent national company;
- As a demonstration that such an ICT-based company, with a strong emphasis on product development, product testing in the local community, and ad product commercialisation, could be viable in the Launceston region, given the existing ICT industry infrastructure, and the availability of local ICT skills and knowledge, mainly in the form of local graduates of Computing and Information Systems degree;
- The introduction of new technologies and new technological products into the Launceston region through ICT product development and testing for the parent company, Telstra. The Telstra B-eLab was established concurrently with the Telstra e-Launceston project, which sought to trail broadband products in the Launceston region. Hence the combination of the e-Launceston project and the Telstra B-eLab enabled the residents of Launceston to access ADSL broadband communication and to trial broadband products earlier than might otherwise have been possible;
- The Telstra B-eLab provided local employment for a number of ICT and Engineering graduates from the University of Tasmania, enabling these graduates to establish careers within the local community, and actively contribute to the regional ICT industry through their enhanced skills and knowledge.

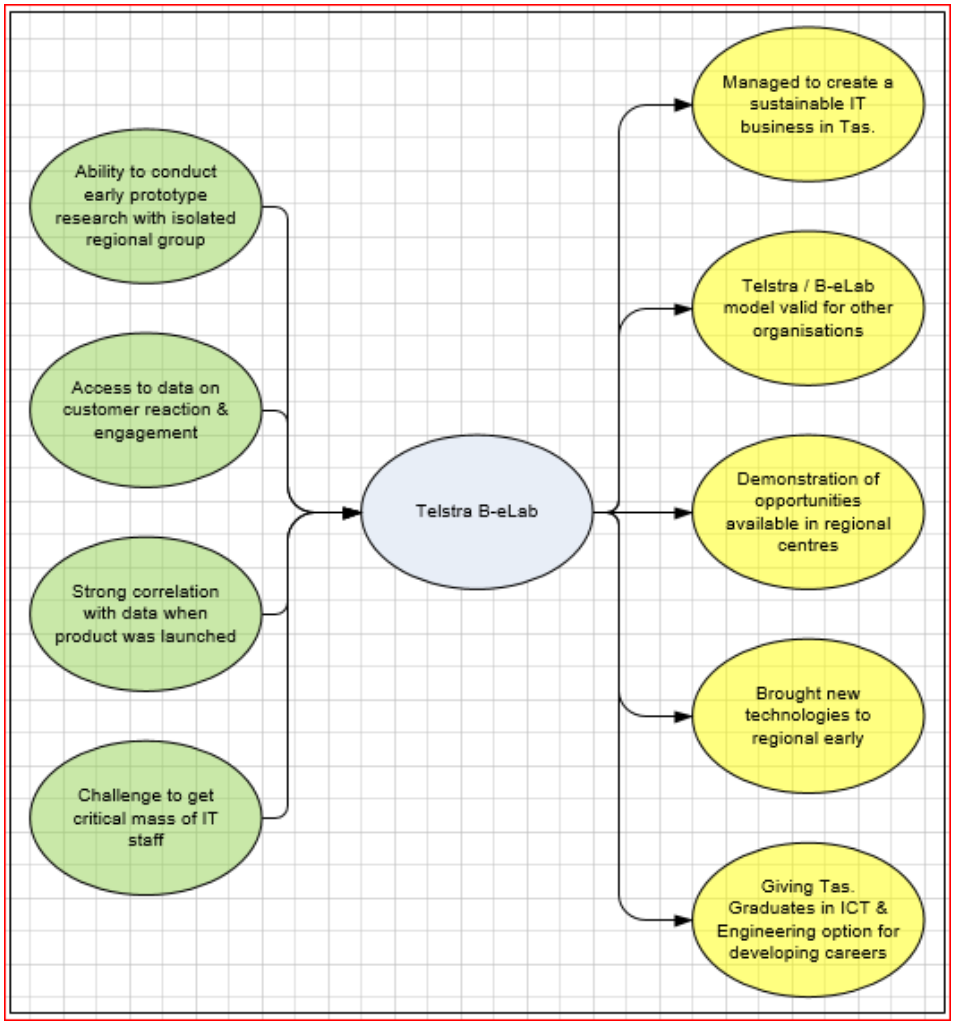

Figure 16. Regional Focus

The following quotations support the extent to which the Telstra B-eLab was able to deliver the outcomes highlighted in Figure 16, and build on the assets and capabilities of the national telecommunications carrier, Telstra, and to actively engage with the local community. These outcomes were achieved despite the challenge of attracting a critical mass of ICT employees, and some limitations on the number of available local ICT graduates.

The relationships are supported in the following extracts:

"So I think we *[B-eLab]* were definitively a flagship of some of the opportunities that the technology brought, and what it could do for a regional centre …" (B: 13-15)

"… *[continuing to show]* what can be done in the regions and trying to work out have we capitalise on, I guess, the skill and knowledge we have, but also that fact that we *[B-eLab]* are away from the major capital cities ... can turn that from a disadvantage to an advantage …" (B: 56-59)

"… we *[B-eLab]* certainly were able to do some pre-launch testing that enabled us to iron out some bugs prior to going public, so ... the fact that we were an isolated regional group was seen as an advantage by the marketing side of Telstra." (B: 155-158)

"… the salary costs are a little bit lower, you can get away with paying a little bit less in the regional areas and still … get good people … it's all part of the equation that makes us *[B-eLab]* competitive." (B: 467-469)

"… *[B-eLab]* has proven that it is possible to work in this state and be effective and collaborate at a very high level from a regional centre, and I think that's a really good model for the industry and for Australia …" (B: 453-455)

5.4.2 Transferability and Scaling Up

Figure 17 illustrates the interrelations between the criteria and processes required for establishing the Telstra B-eLab in Launceston, and the outcomes of establishment that company for the region, for the parent company Telstra, and for the wider ICT industry. As the causal relationships in the diagram illustrate, there is a many-to-many interrelationship between the skills, knowledge and organisational requirements for establishment of the company, and the resultant skills, knowledge and organisational structure.

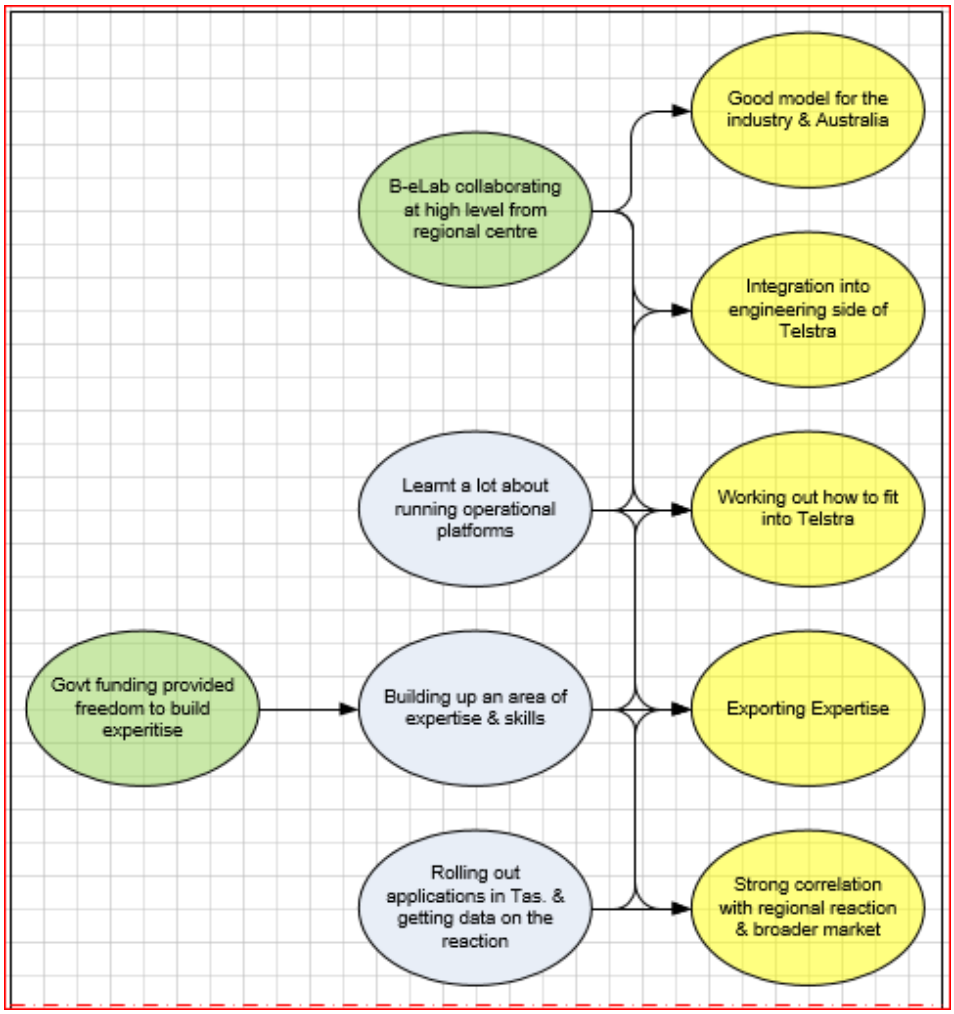

Figure 17. Transferability and Scaling Up (a)

In Figure 18 the inability to commercialise a community portal that was established as part of the e-Launceston project, and utilised by the Telstra B-eLab, is highlighted.

The success of the In-tellinc ICT Incubator are identified as fostering businesses that subsequently achieve a national presence, and producing ICT products that build on other ICT products developed in Tasmania.

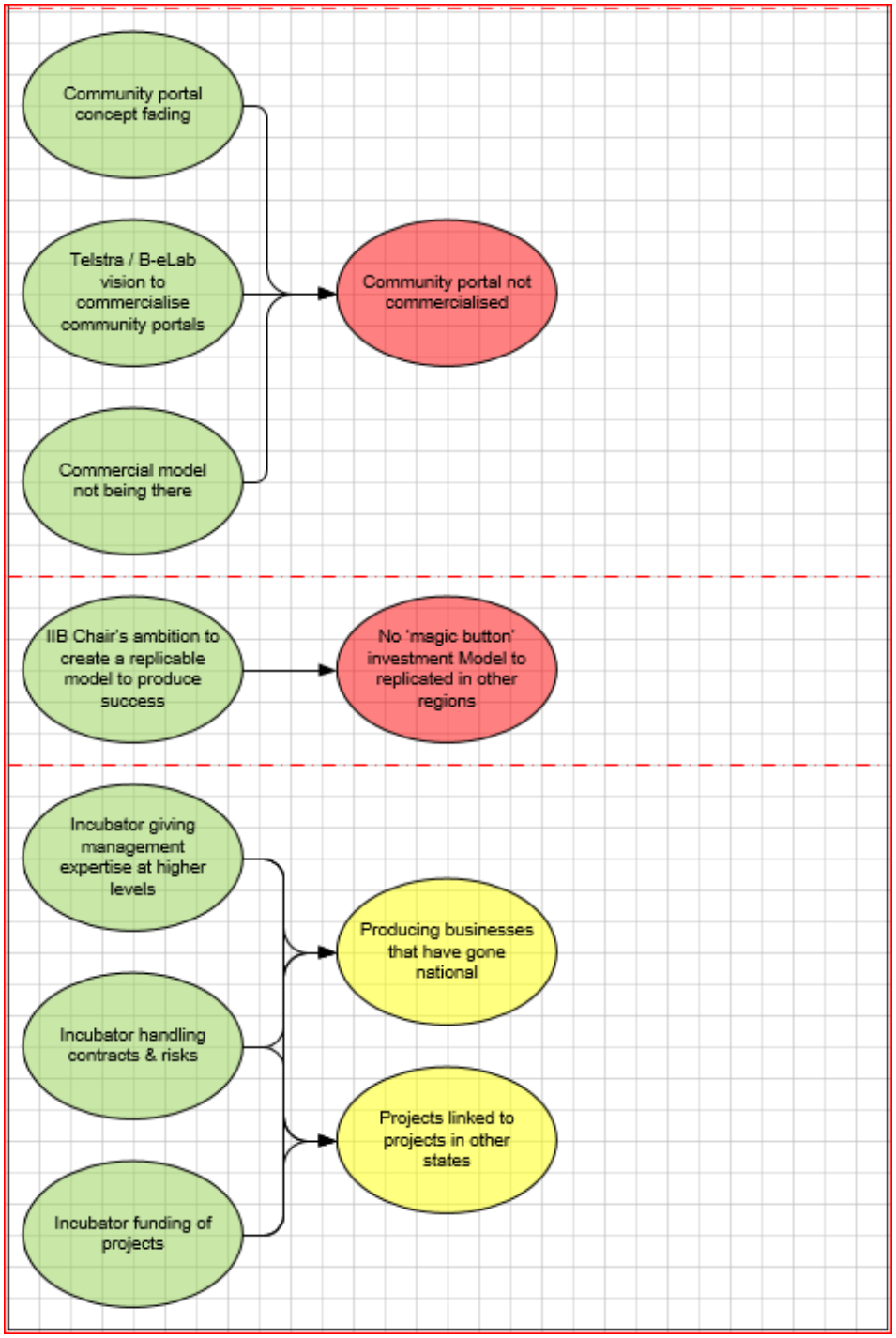

Figure 18. Transferability and Scaling Up (b)

The relationships are supported in the following extracts:

"… Telstra certainly had visions of the community portal as being something that could be commercialised, commoditised, put in a box and sold to every council or community around Australia … and it just didn't happen" (B: 297-306)

"… at times thought perceptions from other people we working with, that they weren't quite convinced that we *[Launceston]* were a representation of the greater Australian community, but certainly we *[B-eLab]* were able to prove on a couple of occasions that when we roll out an application here and got data on customer reaction and perception, and then correlated that with the data when the product was later launched *[nationally]* it was very strong …" (B: 174-179)

"Let's see if we *[IIB]* can create a model, which we can replicate in other places to produce success, and see how we can do it" *[Chair of the IIB]* (G: 82-83)

"I think in relative terms it's *[the Incubator]* been quite successful on the National stage." (G: 94-95)

"… I think we have proven that it is possible to work in this state and be effective and collaborate at a very high level from a regional centre, and I think that's a really good model for the industry and for Australia …" (B: 453-455)

"… in many cases through contacts with DCITA in Canberra, we *[TECC]* linked up proposals with other proposals around Australia …" (F: 217-219)

"… as well as the development side some of our operation capabilities that we gained through doing the trials we have had and have a quite extensive server base that we are able to put products up that customers can try them out so we learnt a lot about running operational platforms ... that expertise has been put to use *[nationally]*." (B113-118)

"… what the government funding did allow us to do is to focus just on the idea of broadband applications … we had some funding freedom to build up an area of

expertise and skills and then work out how to fit into the company *[at a national level]*, and that has worked really well." (B: 133-138)

5.5 Engagement

Engagement, collaboration, or cooperation between the various 'players' was seen by almost all of those interviewed as being one of the primary goals of ICT-related regional development.

5.5.1 ICT Industry with the Wider Tasmanian Industry Sector

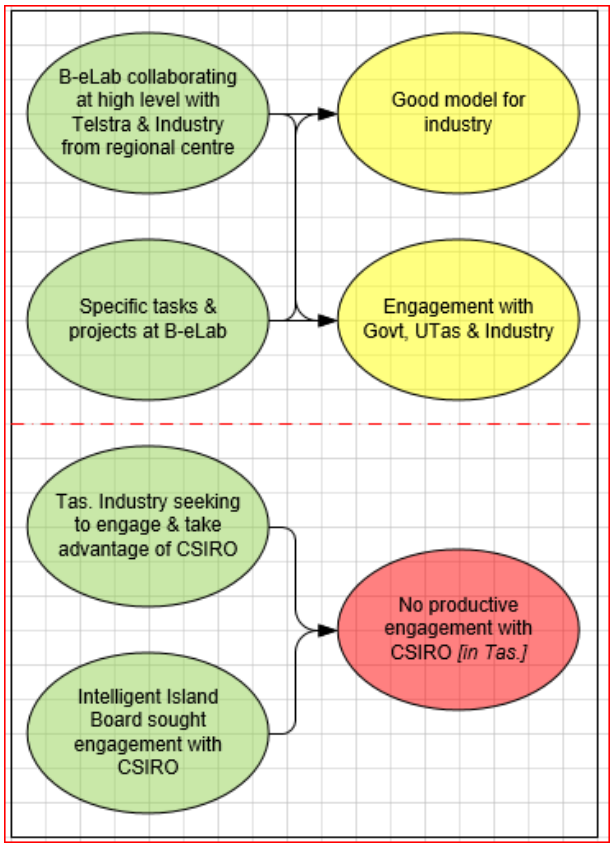

Figure 19. ICT Industry Engagement with the Wider Tasmanian Industry Sector

The upper section of Figure 19 highlights the success of Telstra as a national company operating within a regional area. The success was such that their senior management believed the model was transferable to both ICT and non-ICT industries. In contrast, the lower section of Figure 19 represents the views of the interviewees from the

Tasmanian ICT Industry and the Intelligent Island Board that engagement with the CSIRO in Tasmania was at best difficult, and was without any meaningful or productive outcome during the period under review.

The relationships are supported in the following extracts:

"… proven that it is possible to work in this state and be effective and collaborate at a very high level from a regional centre, and I think that's a really good model for the industry and for Australia …" (B: 453-455)

"… I've certainly felt that there's been good engagement and I guess both the Information Systems and the School of Computing … we're both on the panel for the Business Development Fund, and certainly that panel was one of the means around which I engaged with a lot of the industry and government in Tasmania a well." (B: 419-423)

"… I feel there was real engagement around tasks *[with UTas and industry]*…" (B: 433-434)

"… the *[Intelligent Island]* Board sought to engage with CSIRO on many occasions and was unsuccessful." (C: 346-347)

"… *[Tasmanian Industry]* would like to engage with him *[CSIRO]*, people would like to take advantage of it, but it's very hard." (G: 303-304)

5.5.2 ICT Industry with Australian, Tasmanian, and Local Government

The engagement between the different levels of government and the ICT industry within Tasmania, as illustrated in Figure 20, was at best, uneven. While the Federal Government's funding negotiations with Senator Harradine, and the Launceston City Council's emphasis on exploiting the information economy, created the opportunities for engagement with Telstra through the creation of the B-eLab, the perceived lack of strategic direction from the State Government to the IIB and the Tasmanian ICT industry in general limited the possibilities for positive outcomes from engagement. A

flow on from this was a widespread fear within the Tasmanian ICT Industry that government funding was being used to fund programs that were directly competing with the local ICT industry.

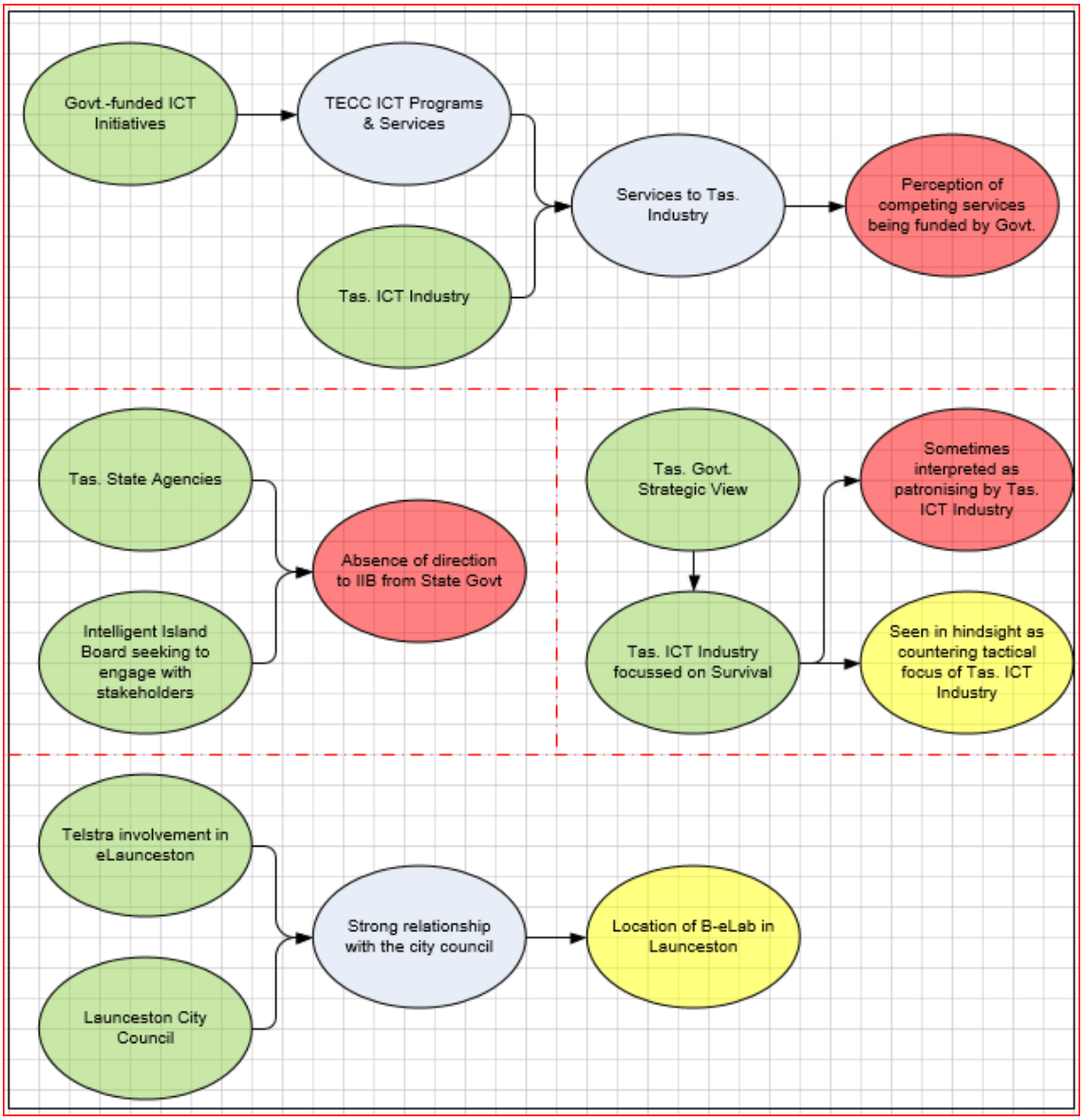

Figure 20. ICT Industry Engagement with Australian, Tasmanian, and Local Governments

The relationships are supported in the following extracts:

"…this *[decent]* was more coming from people that were offering the same sort of service to industry as the TECC … a government funded body …" (A: 360-362)

"… certainly one of the key reasons that the *[B-e]*Lab and the LBP ended up in Launceston were some of those relationships that were formed out of eLaunceston, and there clearly are some stakeholders, or community leaders in Launceston that wanted to focus on the information economy, as one of the ways forward, and that really was one of the main decision factors that we ended up here verses somewhere else." (B: 271-276)

"… they've *[Telstra]* got a research and development facility at Clayton, why is it that they couldn't be doing some research and development in Tasmania …" (A: 96-87)

"… the Government sometimes says to the *[ICT]* Industry don't worry, we know what's best for you, and the Industry sees that as being patronising …" (G: 487-489)

"… I think the Government actually does know better than the Industry what's best for it because the *[ICT]* Industry has a bunch of very un-strategic views, and the Government actually is taking a strategic view …" (G: 490-492)

5.5.3 Tasmanian Electronic Commerce Centre

The Tasmanian Electronic Commerce Centre (TECC) successfully engaged with a wide variety of ICT and non-ICT industries, government agencies, the Schools of Information Systems and Computing, community groups, and members of the public. The relationships represented in Figures 21 and 22 give an indication of the breadth of the TECC's engagement. However, the absence of strategic direction and full engagement by the TECC's joint partners, the Tasmanian State Government and the University of Tasmania, was seen by some of those interviewed as restricting the realisation of the TECC's full potential. The lack of direction and engagement from the joint partners was seen by one of the interviewees as a result of the partners not fully appreciating the significance and potential of the TECC.

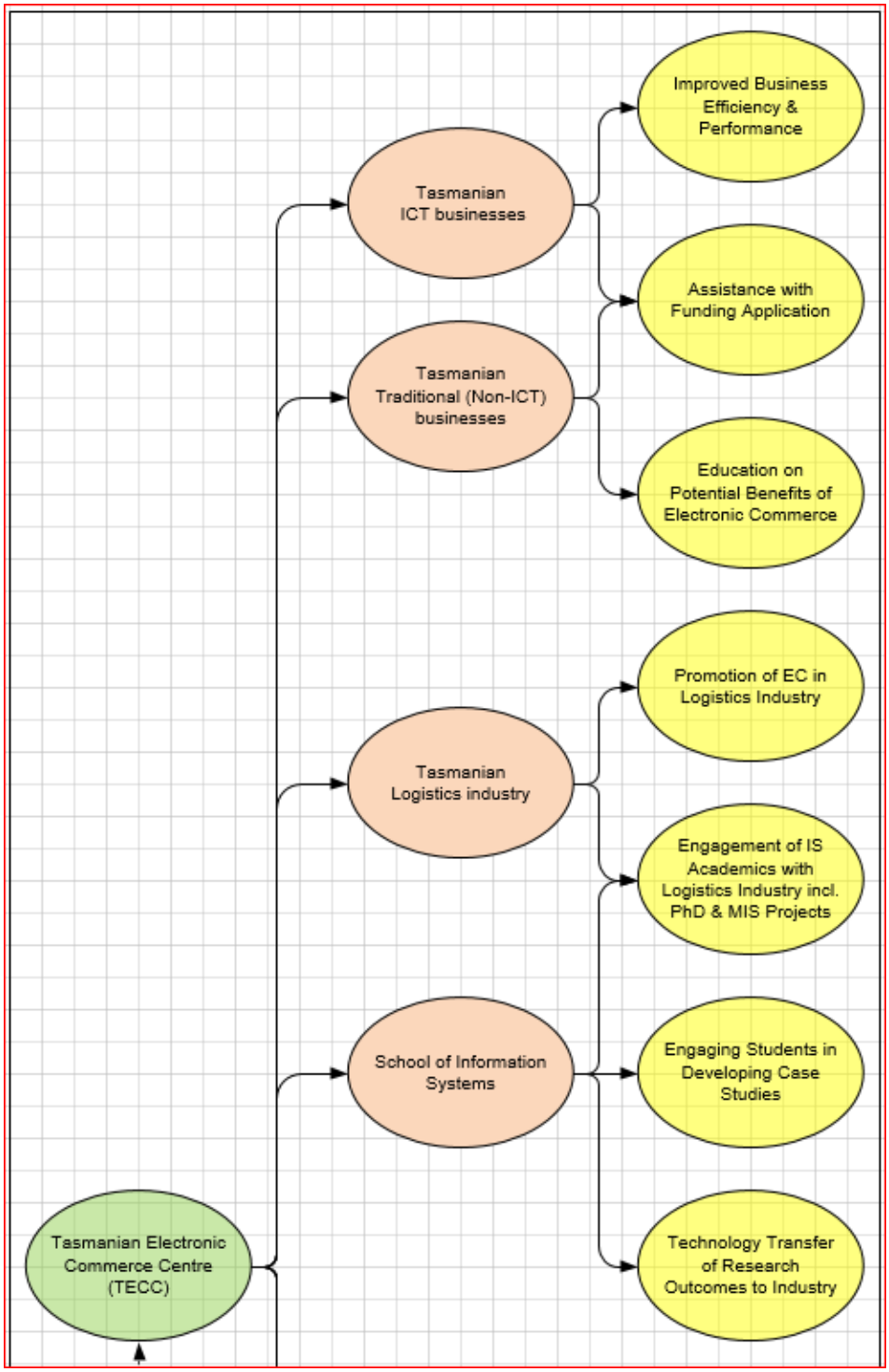

Figure 21. Engagement Network of the Tasmanian Electronic Commerce Centre (a)

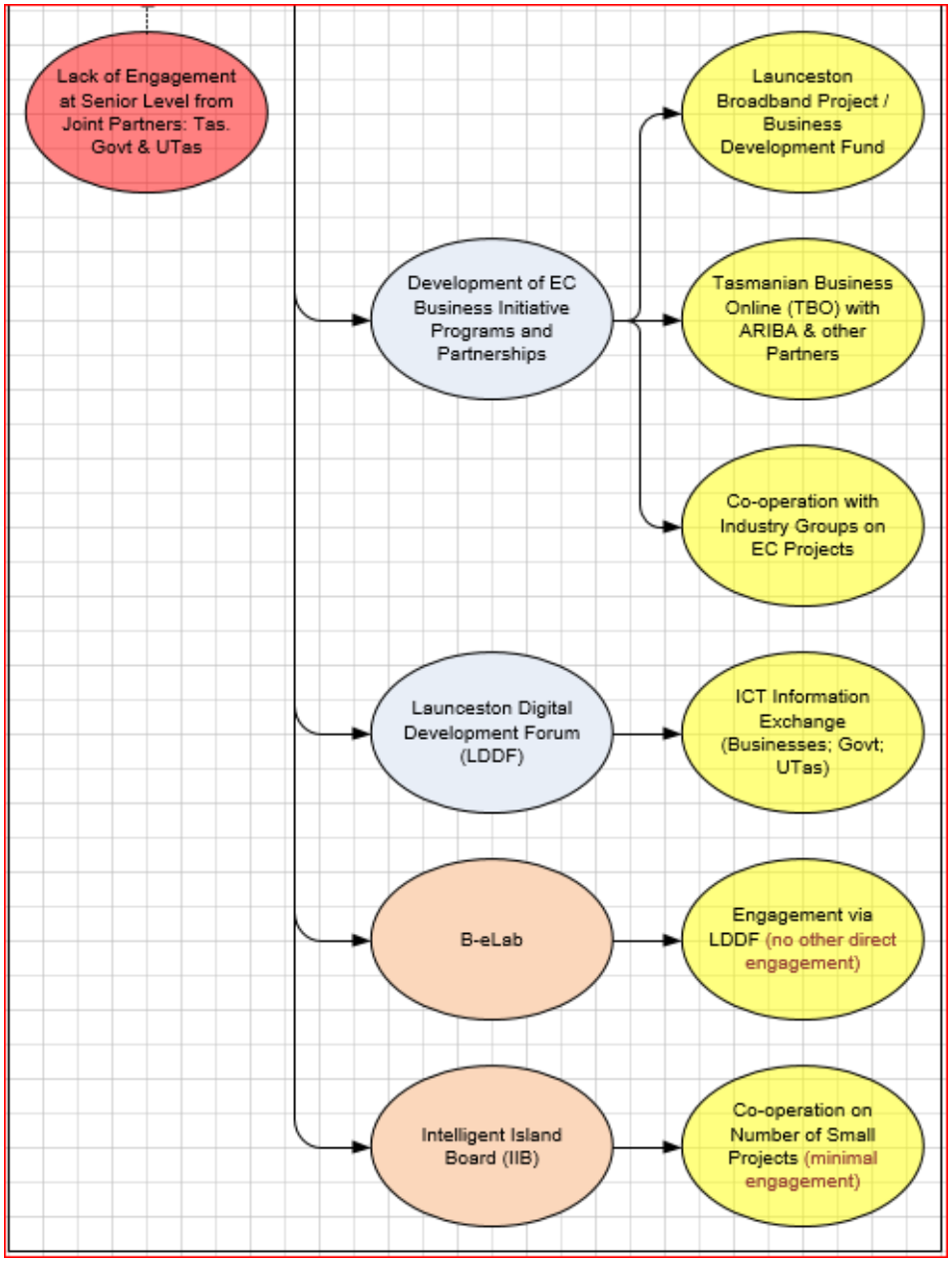

Figure 22. Engagement Network of the Tasmanian Electronic Commerce Centre (b)

The relationships are supported in the following extracts:

"… ended up having strong relationships with Tasmanian IT firms and working with them in terms of them coming to finalise their applications or their work with traditional businesses, so we had a lot of interaction with local IT firms …" (D1: 48-50)

"… the University got students doing some exciting and different project research work and we *[TECC]* got case studies developed as a result of that, so that was a good relationship there, but I don't think the University knew what else to do with us …" (E: 514-517)

"… *[there was a]* lack of engagement of the two shareholders in the TECC, that neither the University *[of Tasmania]* nor *[Tasmanian State]* Government appeared to really have a good grasp of what they had created." (F: 283-285)

"… there were other initiatives that came out of the TECC for example, there was a strong engagement in the latter years with the Logistics Industry and there were a number of initiatives there that at least forged a recognition of the need for eCommerce in logistics and particular linkages with a number of eLogistic providers." (F: 410-414)

"I think that sort of engagement with *[the Logistics]* industry was valuable because as academics it kind of kept us informed and engaged." (F: 415-416)

"The TECC then also spawned off several other initiatives, including Tasmanian Business Online *[TBO]*, which was a partnership with eCommerce portal called ARIBA …" (F: 234-235)

"… there was a lot of engagement of post-graduates by the TECC in, particularly fact finding type activities, there was very little investment of the TECC into research …" (F: 292-294)

"The B-eLab … were always present at LDDF meetings, always contributed very positively to it. Beyond that I didn't see evidence of direct active engagement of the B-eLab with the TECC." (F: 461-464)

"… there was a direct engagement of the TECC with a number of companies that were located within the *[Launceston]* Incubator. I think from memory they funded several

companies in particular ventures and that later translated into the BDF fund." (F: 465-468)

"We have had some co-operation with them *[IIB]* in terms of small projects we have done where we have worked for an industry group and the industry group might have got AU$50,000 for a study or something, but they are doing their stuff and we *[TECC]* are quite separate." (D1: 242-244)

"There was certainly some collaboration *[through TECC]*; the LDDF was a good example of that." (F: 459-460)

5.5.4 Intelligent Island Board

Figures 23 and 24 give an indication of the diversity of the areas to which the Intelligent Island Board was working to engage with. Ultimately there were only a few areas that were judged by those interviewed as having been successful. Those interviewed suggested that there was a variety of issues that impacted on the IIB's ability to successfully engage within the Tasmanian environment, these included: a mismatch between the strategic level the IIB and the Tasmanian ICT industry were operating at; the perception by some of the Board members that the local ICT industry was not worth supporting; and the inability of the IIB to secure significant collaborative partnerships.

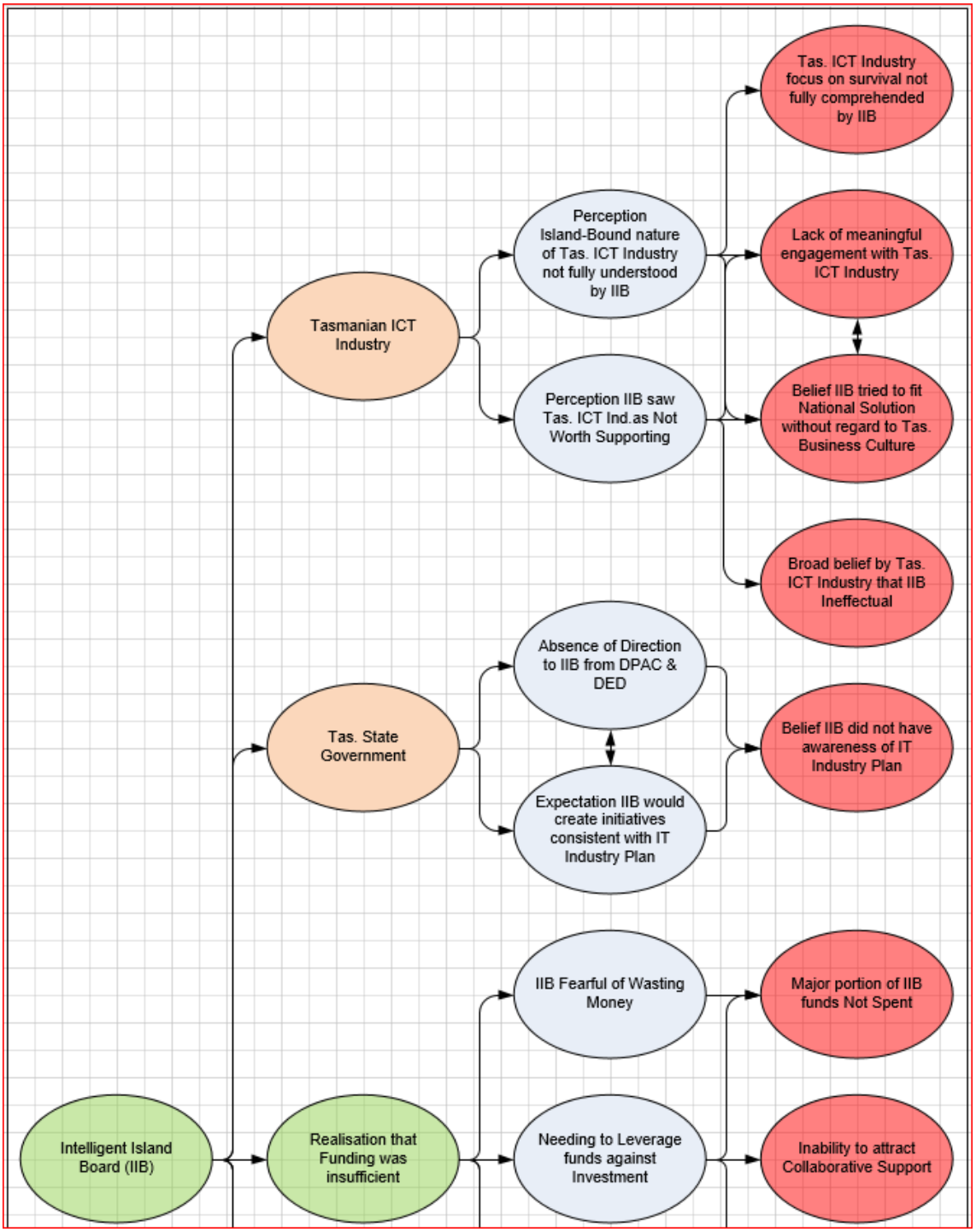

Figure 23. Engagement Network of the Tasmanian Intelligent Island Board (a)

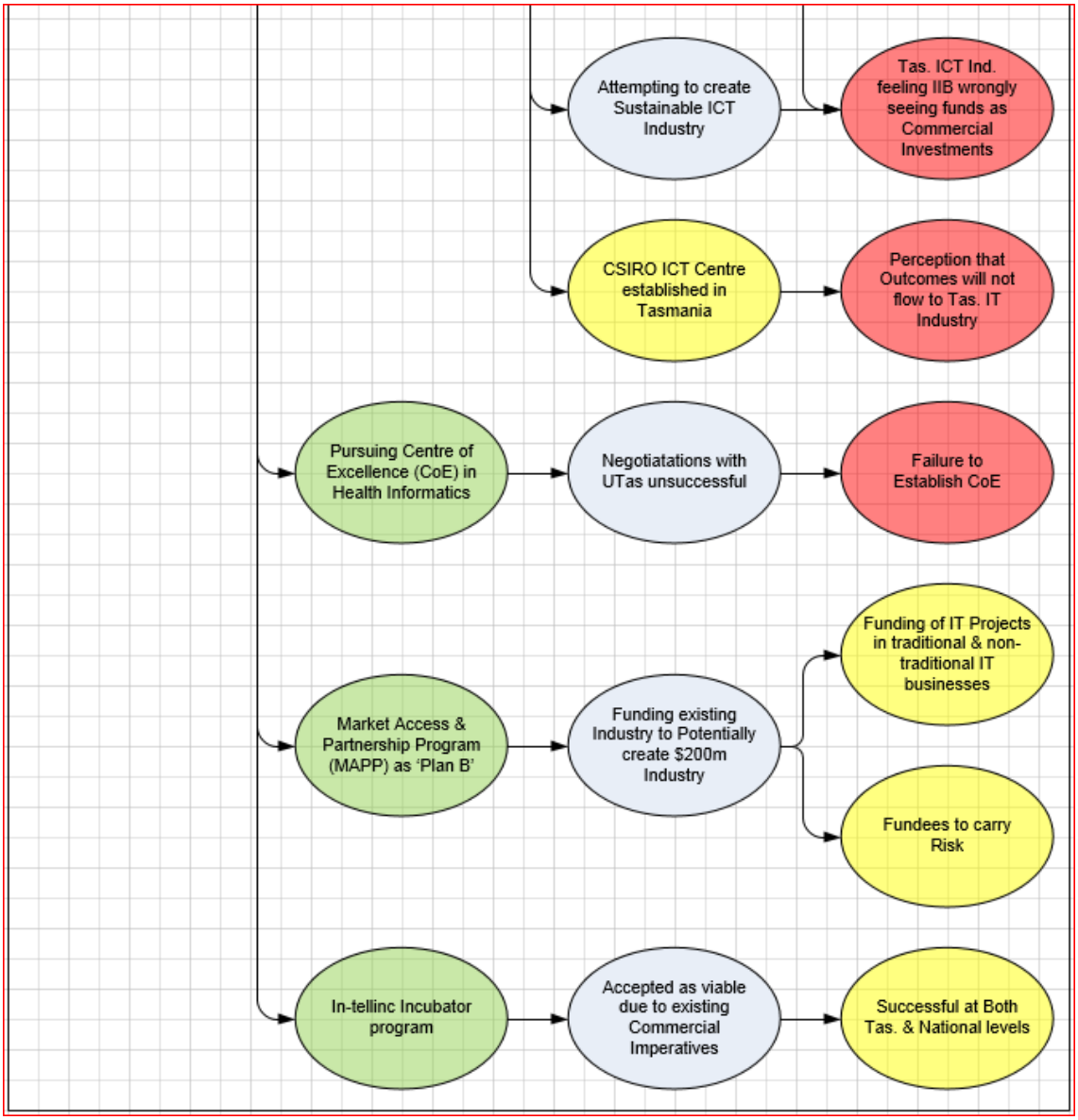

Figure 24. Engagement Network of the Tasmanian Intelligent Island Board (b)

The relationships are supported in the following extracts:

"… the *[Intelligent Island]* Board never really faced the reality of business which is state-based. They basically always tried to fit it to the national solution. ... So really, that was the issue in terms of engaging with industry." (G: 379-383)

"… the *[Intelligent Island]* Board sought to engage with CSIRO on many occasions and was unsuccessful." (C: 346-347)

"… the engagement of both DPAC and the Department of Economic Development *[with the IIB]* was not very animated." (F: 176-178)

"… the whole point *[of the Intelligent Island Program]* was to benefit, to improve the standing and capability and success of the IT industry in Tasmania. … the problem was, they didn't even think that there was an IT industry in Tasmania worth supporting." (G: 420-423)

"… it would have been better if we'd *[the IIB]* engaged with industry a bit more, I think it was too standoffish …" (G: 191-192)

"I don't think he *[IIB Chair]* engaged with industry very well." (G: 361-362)

"… it *[IIB]* was striving to do the best that it could with the available money and it was finding it very difficult to find collaborative support, particularly from industry, but also from the State Government." (C: 343-345)

"… the input to the *[Intelligent Island]* Board from those two Agency heads *[Department of Economic Development, and Department of Premier and Cabinet]* was very limited, they rarely said very much at all, … there was an absence of direction from within State Government." (C: 183-185)

"The Incubator *[In-tellinc]* was sort of the program that went off and happened, largely because there was a lot of commercial imperative around it ... I think in relative terms it's been quite successful on the National stage." (G: 89-95)

"… Incubators having *[been]* set up throughout Australia under the BITS program, the Intelligent Island Board used exactly the same model to create and distribute funds …" (F: 434-436)

"… the MAPP program *[Market Access and Partnership Program]*, that was actually Plan B. … there's no one that we can give 40 million bucks to who's going to create a

1 billion dollar industry. Let's look at who there is around that we could give some money to that might be able to create a 200 million dollar industry …" (G: 125-129)

5.5.5 University of Tasmania

Active engagement at the corporate or senior management level of the University of Tasmania with the ICT-related initiatives did not extend to a significant degree beyond its initial involvement in the forming of the Intelligent Island Board and the Tasmanian Electronic Commerce Centre as indicated in Figure 25.

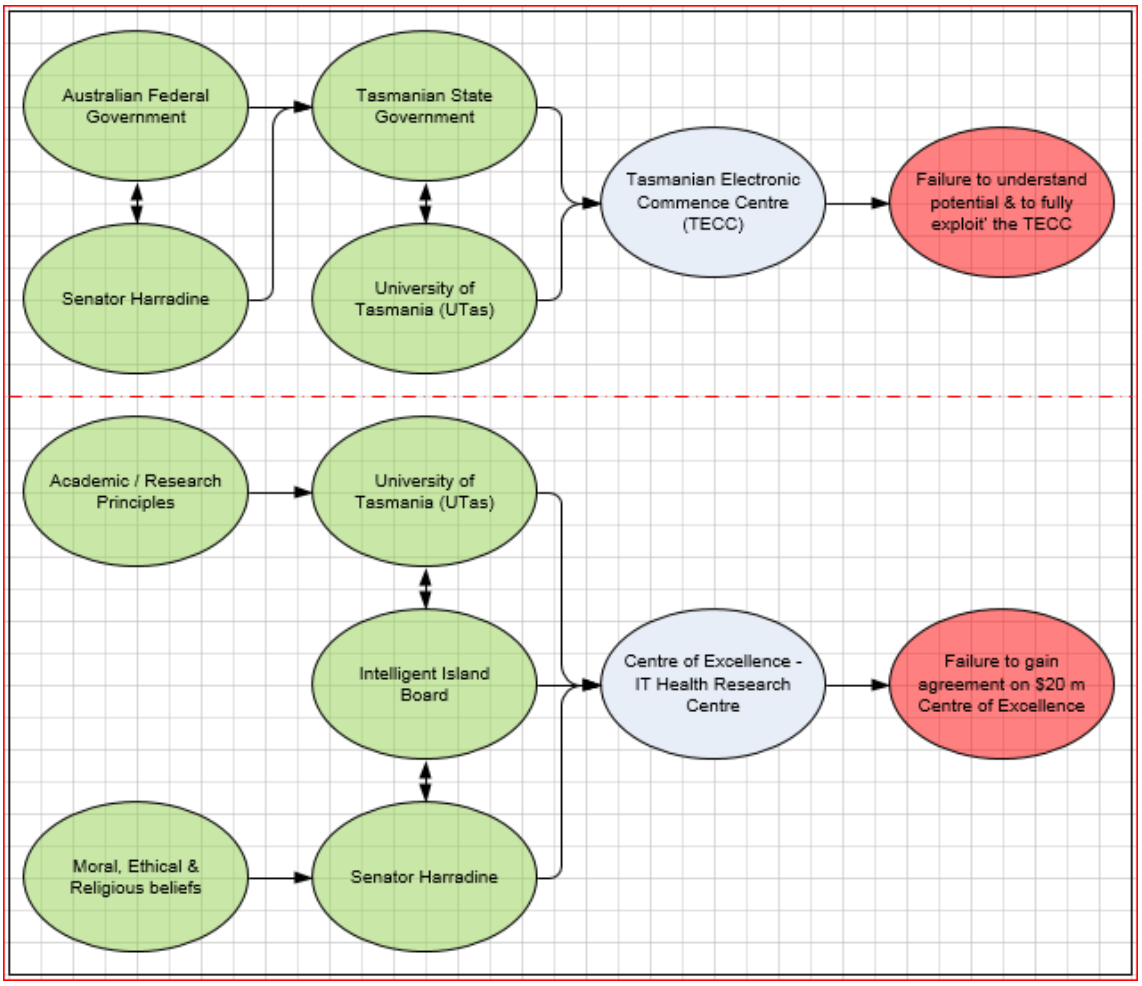

Figure 25. Engagement Network of the University of Tasmania (Corporate Level)

The major engagement of the University following their initial involvement was in negotiations with the IIB, the Federal Government and Senator Harradine on the creation of an IT Health Research Centre of Excellence. The three parties were unable

to reach agreement on the Centre, with the main issue revolving around Senator Harradine's insistence that his pro-life principles not be compromised, and the University unable to accept this restriction on their academic principles, with the result that the Centre did not eventuate.

The relationships are supported in the following extracts:

"… we *[Senator Harradine's Office]* got a visit from Rhys Edwards, who was working in the Premier's office then, and he came to Canberra *[to the office of the Minister for Communications, Information Technology and the Arts]* and we discussed ... *[the Tasmanian Government's]* Industry Audits, and there was one on information technology and that was just ideal …" (A: 63 - 70)

"… early 1997 an incorporated not for profit company *[the TECC]* was set up with the University and the State Government being the shareholders …" (F: 179-180)

"… *[the University of Tasmania]* saw a need to roll out skills and awareness programs within industry and then to engage with industry and form essentially the infrastructure for the second tier of IT investment." (F: 77-79)

"… recognition of the importance of research and particularly within a context such as Tasmania and the value that such research could have imparted to the TECC was missing." (F: 358-359)

"With the exception of one or two occasions the relationship with the TECC was almost never discussed that I was aware of in the University …" (F: 362-363)

"… I mean the University knocked back AU$20 million *[for the Centre of Excellence]* because they didn't want to compromise their academic principles, or their research principles …" (A: 176 - 177)

"… he's *[Senator Harradine]* got a passion for pro-life issues, and he just would not allow any of that money to be used for anything that might compromise those principles." (A: 200 – 201)

"*[The Intelligent Island Board]* had committed that fund to a proposal that was based around health informatics, and we thought at the time that we had the agreement of the University and of the State Government … Unfortunately subsequent to that, that agreement fell apart." (C: 269 – 272)

5.5.6 Corporate with SMEs

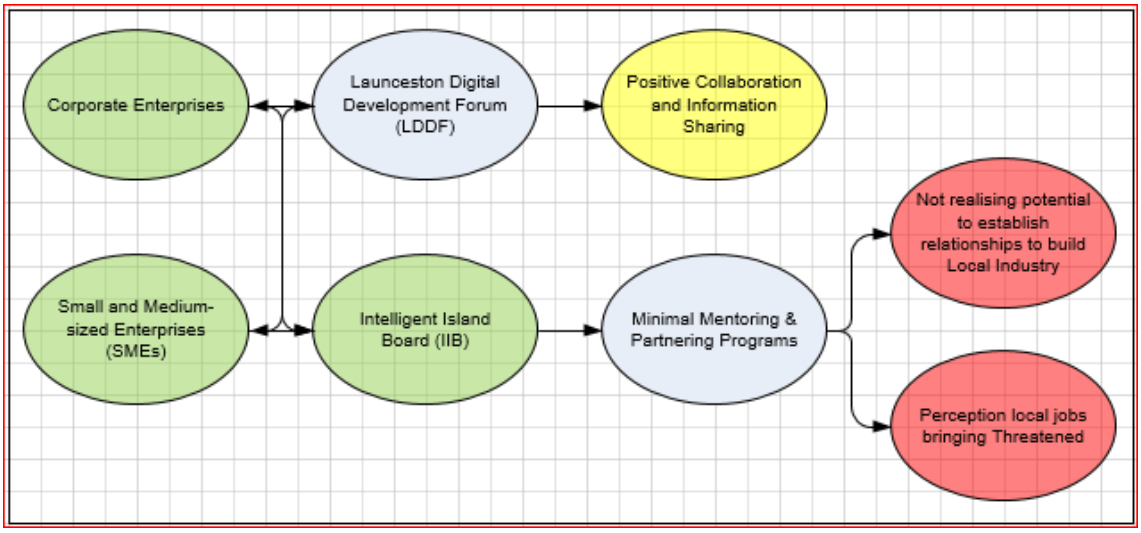

Figure 26. Engagement between Corporate Enterprises and SMEs

The two major areas of engagement between corporate enterprises and small and medium enterprises (SMEs) represented in Figure 26, collaboration and information sharing, and mentoring and partnering were given different assessments. The Launceston Digital Development Forum met its objective of sharing information across the spectrum of its members. Whereas the attempts to foster mentoring and partnering by the IIB did not just fail to meet expectations, but there was a degree of tension generated due to the concerns of the local industry that the large corporations could adversely affect their existing businesses.

The relationships are supported in the following extracts:

"So I think that that style of mentoring could have been far more strongly adopted by the *[Intelligent Island]* Board, and even to the extent of perhaps bringing in more partnering with larger mainland or international companies. There was a lot of tension over that as well, in that the local industry saw that as taking jobs away, instead of looking at bringing in companies who potentially could establish local relationships, and build up the local industry." (C: 501-505)

"… the LDDF, Launceston Digital Development Forum, was a good example of that where I thought we had a very positive engagement … with a number of Launceston businesses and with nationals such as Telstra and so on …" (F: 311 - 313)

"There was certainly some collaboration; the LDDF was a good example of that. The LDDF I felt was a very positive initiative, it led to bi-monthly forums of interested bodies from around the Launceston region." (F: 459-461)

5.6 Supply Chain in Regional Context

A major initiative of the Tasmanian Electronic Commerce Centre (TECC) was the creation of a state-wide online trading hub, the Tasmanian Business Online (TBO), in partnership with KPMG, m2m Corporation, and Ariba Inc. Despite the in-principle support of the Tasmanian State Government, and its success as a demonstration project, the TBO's promised potential was not realised.

Figure 27 illustrates that because of the Tasmanian State Government's decision not to move a significant portion of their purchasing online, there was no effective supply chain leader creating a strong business case for the use of the TBO to the broader Tasmanian industry.

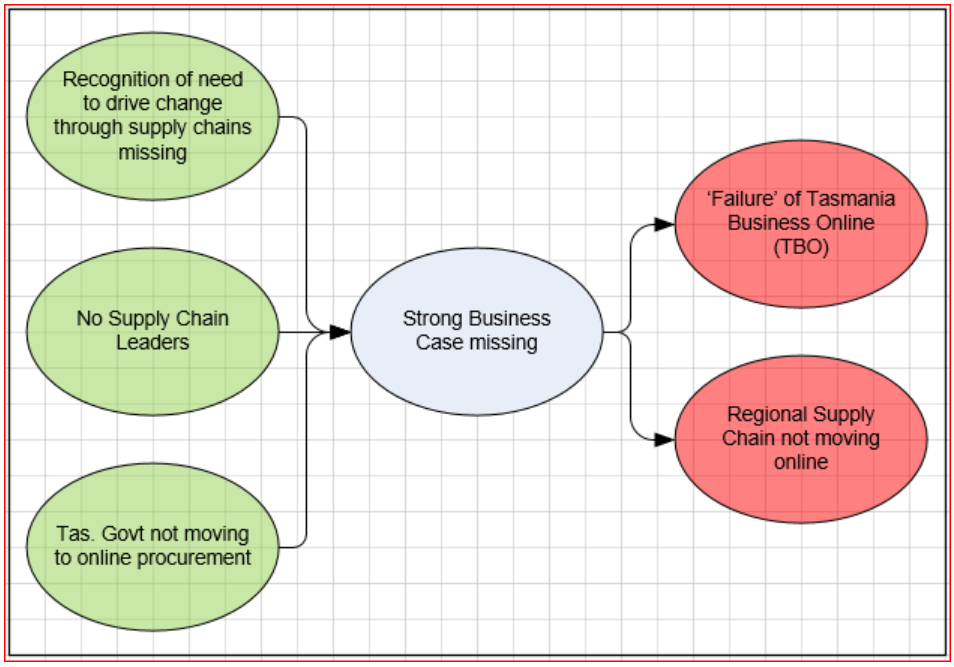

Figure 27. Regional Context of the Supply Chain

The relationships are supported in the following extracts:

"While there was investment in that program *[Tasmania Business Online]* from an accounting firm … the success wasn't all that was hoped for in terms of the uptake by business." (F: 238 - 241)

"… the big downfall *[of the Tasmania Business Online]* in all of that was the fact that government purchasing never went online, it didn't go online to any great extent." (D2: 219 – 220)

"So the lack of demonstrator and the lack of recognition of the need to drive change through supply chains was not there. In reality, most companies will only change if it is regulated or if the supply chain leader forces it upon them or if the business case is blindingly obvious and demonstrable." (F: 268-271)

5.6.1 Infrastructure

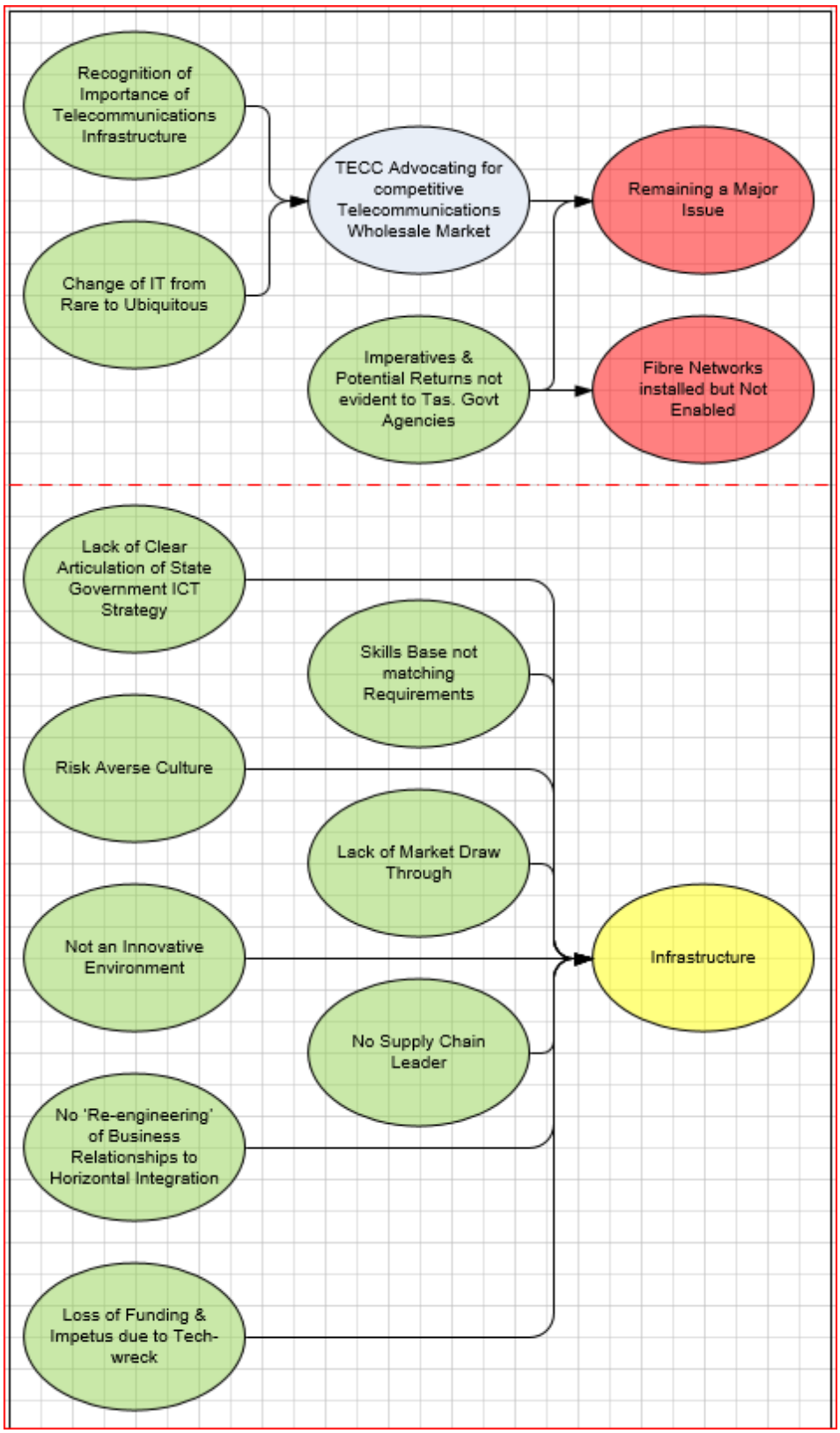

Figure 28. Relationships of the Two Definitions of Infrastructure

The upper diagram in Figure 28, paints a picture of frustration with the lack of progress in providing the Tasmanian State with a competitive telecommunications wholesale market during the period covered by the research. Stalled programs such as the provision of optical fibre networks were seen as symptomatic of the Government's limited vision and reluctance to commit without a guaranteed return on investment, and was seen as a significant barrier to the Tasmanian ICT Industry moving forward.

The lower diagram in Figure 28 illustrates the understanding of those interviewed that the ICT infrastructure was far more than connectivity alone. A culture of risk aversion coupled with a lack of strategic vision and leadership, and at times a tough economic environment, meant the infrastructure needed to grow the Tasmanian ICT Industry to its full potential, did not materialise.

The relationships are supported in the following extracts:

"... the Board helped to raise the spectre of ICT as viable industry, I think prior to that … there was a lot of scepticism amongst big business in terms of how viable ICT could ever be." (C: 303-306)

" … I think there was a lack of credibility of ICT, whereas I think the Board helped to establish that credibility." (C: 310-311)

"… that *[lack of horizontal integration]* was largely due to the lack of industry infrastructure in terms of having companies out there who had the freedom to, well basically to create a vision and push it, and secondly having the infrastructure in which they could move away from this small pool mentality where they were all competing with one another." (C: 400-403)

"… because there was so little money to spend the *[Intelligent Island]* Board would often fund pilot programs instead of looking at putting more money into a whole of state program. I guess this also has to do with lack of infrastructure and I think it is also, due to the nature of the relationship between the Board and the State Government. And

there not being, apart from the State Government, there being a natural agent out there to deliver whole of state programs." (C: 425-428)

"… businesses can look to improve their business performance through access to far more advanced capability infrastructure, such as broadband …" (D1: 45-47)

"… we got into looking into a lot of the issues around why things weren't happening down here and other sort of investment into the state and that's where infrastructure became so important, besides the anomalies or not anomalies, the issues that exist around a very uncompetitive wholesale telecommunications market down here …" (D1: 163-166)

"… we *[TECC]* got into looking into a lot of the issues around why things weren't happening down here and other sort of investment into the state and that's where infrastructure became so important …" (D1: 163-165)

"The actual infrastructure itself, was you know, serious questions about it for the capabilities of businesses going forward …" (D1:168-169)

"… we are still trying to get information technology, communications technology, infrastructure of the future located here in Tasmania, not just for traditional businesses and government services but also maybe attracting investment and businesses re-locating to put new industries, new services and operating them out of Tasmania …" (D1: 259-262)

"… increase their exposure to and their uptake of new business practices supported by smart ICT business practices and supported by infrastructure." (D2: 1-3)

"… leading them *[businesses]* into a space where they couldn't operate effectively and one of the issues obviously was telecommunications cost down here … but we *[TECC]* are hoping that's going to be remedied by having a competitive wholesale market place." (D2: 595-598)

"There became a strong focus upon headlining; producing marketable material and the focus upon longer term infrastructure building and so on was lost." (F: 367-369)

"The strategy was articulated that call centres might come and go within three years, but the TECC would provide the infrastructure that would lead to IT uptake and industry development and maybe the possibility of attracting new industry to Tasmania beyond that three year timeframe." (F: 447-450)

"… the intention of BDF was … again to encourage the development of industry that would utilise the broadband infrastructure and potentially products would flow down to the B-eLab." (F: 471-473)

"… we have fibre networks within Tasmania that haven't been turned on *[as at early 2008]*, so that I think the imperative and the returns that would flow from delivering such infrastructure is still not evident to government bodies, nor I think are the returns evident to private investors." (F: 498-500)

"I guess part of it was we were dealing with the future and it is often difficult for people who don't have either that vision nor a familiarity with the nature of the infrastructure you are talking about to see what the potential return of it." (F: 534-536)

"… structural reconstruction of infrastructure was really the big picture, I mean structuration was the big picture that we were looking at the TECC and it was very difficult to convey the nature of that process to the other people involved." (F: 567-569)

"It's obviously been proven that it's not the case *[create a huge industry with AU$40 million]*, that you still need to have initiative, you still need to have feeder programs, you still need to have other components of the infrastructure in place to be able to create that ... to have that sort of thing happen." (G: 627-629)

5.6.3 Skills Base

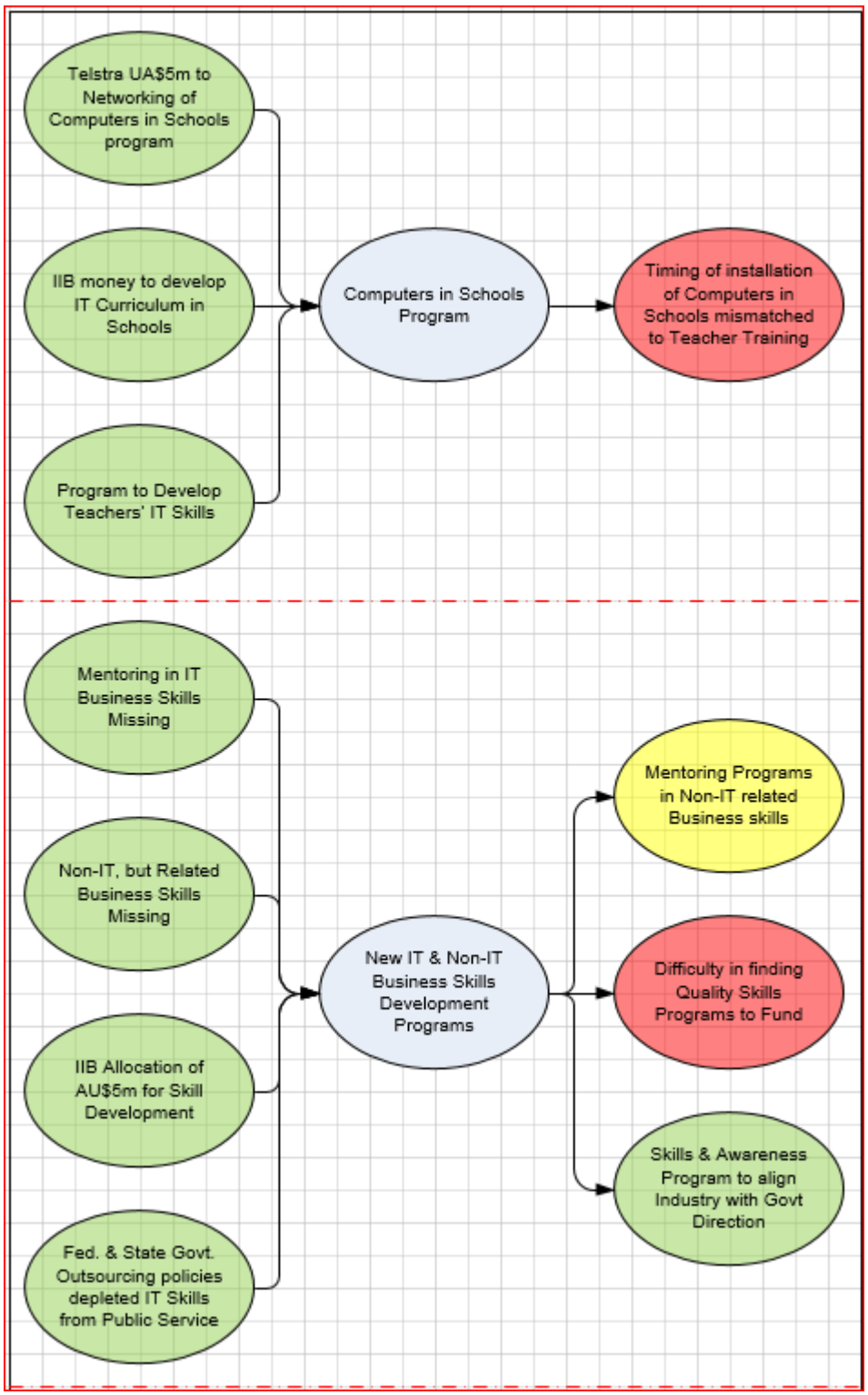

Figure 29. Skills Programs (a)

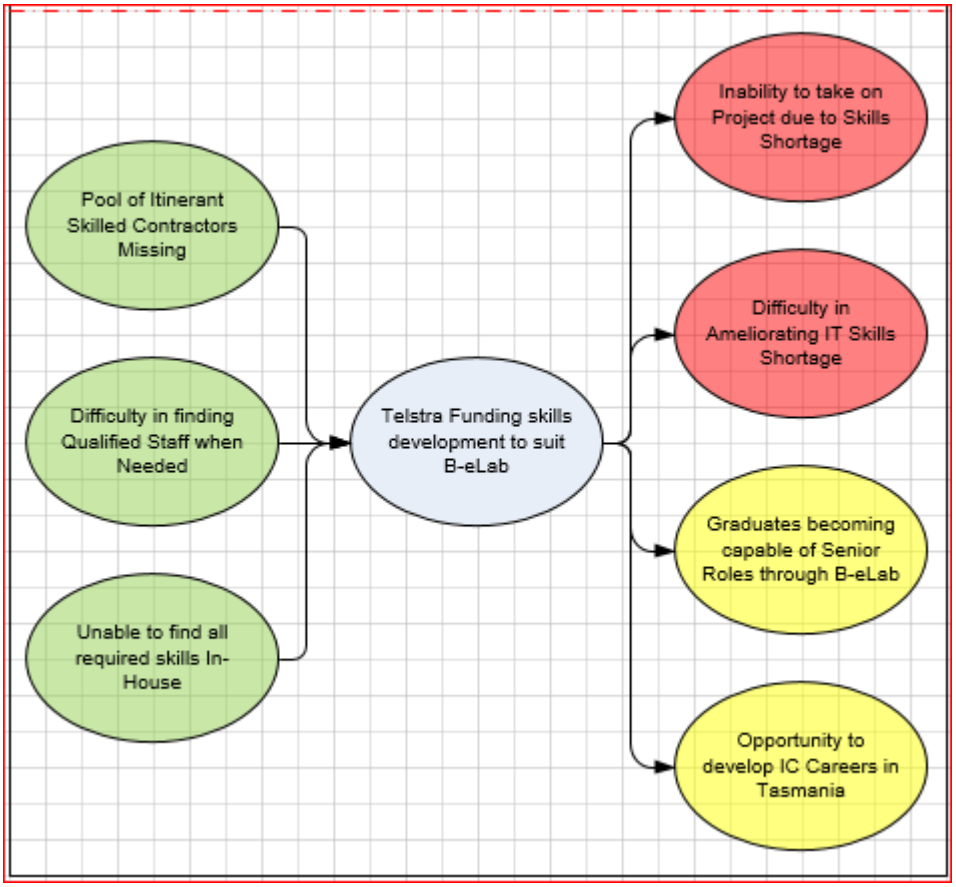

Figure 30. Skills Programs (b)

The programs to develop ICT skills in Tasmania were many and varied as summarised in Figures 29 and 30. The outcomes of these programs were also varied. The upper diagram in Figure 29 tells of the Computers in Schools program whose intent was thwarted due to a lack of coordination between its two major components; delivering the teacher ICT skills training two years before the installation of the hardware.

The lower diagram in Figure 29 also depicts an issue with timing as the Federal and Tasmanian State Governments' outsourcing policies were implemented before the required level of ICT skills were available within the private sector, leading to significant numbers of those with ICT skills leaving the public service to take up private sector positions.

Telstra's experience, as shown in Figure 30, reinforces that outcomes were mixed. At the same time that Telstra was able to provide opportunities for local ICT graduates and workers to enter ICT-related careers, the lack of available-when-needed ICT staff led to the B-eLab forgoing projects that it was otherwise capable of developing.

The relationships are supported in the following extracts:

"Telstra agreed to put AU$5 million into the connection of the computers in schools …" (A: 272)

"… as part of the school investment, it was looking at up-skilling teachers, so a lot of teachers were put through Windows courses at that stage." (F: 161-163)

"… the role out of that program *[computers in schools]* lagged about two years behind were it could have been and so the teachers became very frustrated that the technology was simply wasn't delivered, and of course their skills and knowledge just died because they couldn't use it." (C: 110-113)

"… the other thing *[IIB achievement]* was that the skills program, a lot of that money was spent on schools on promotion of development of IT curriculum and so on." (C: 326-328)

"… it *[government outsourcing of ICT]* really was far too ambitious and it lead to a depletion of IT skills from the public service amongst other problems …" (C: 63-64)

"… there was a problem of lack of draw-through *[from TAFE]* to local employment in IT …" (C: 153)

"… almost five million for skills development *[allocated by IIB]* …" (C: 241)

"… it was a frustration particularly at the *[Intelligent Island]* Board level and I'm thinking here of the Skills Fund program that applications at the Skills Fund committee considered when they were bought to the Board were frequently knocked back simply

because they weren't of significant quality, and I think the problem there was really a matter of what the Skills Fund had to work with." (C: 405-409)

"… there was a lack of mentoring of those proposals … I'm thinking here of the skills program …" (C: 488-489)

"Things that we had to be aware of that we really couldn't do much about was the skills shortage *[for funded projects]* …" (D2: 367-368)

"… that was a new skill *[writing funding proposals]*, and many of them hadn't thought of doing a business case …" (E: 384)

"… we put together a proposal for an Electronic Commerce Centre, mainly because we saw it closely aligned with the way the government was heading, we saw a need to roll out skills and awareness programs within industry and then to engage with industry and form essentially the infrastructure for the second tier of IT investment." (F: 77-79)

"… we *[TECC]* brought people down here to do things like project management courses for implementing to make sure the investment had the best chance of being successful …" (D1: 216-218)

"… it's actually been a bit of a challenge to get qualified staff that are available … as people move on, or new projects start up …" (B: 65-67)

"… there's no IT recruiting entity in Tassie, so you're dealing with the Melbourne recruiters and they just don't know the market …" (B: 90-91)

"… some sort of contract, or itinerant pool of skilled people that you can bring on when you need them and use them as required" (B: 85-87)

"… *[the B-eLab has]* given IT graduates and Engineering graduates in Tassie an option for developing their career and being at the leading edge of what you could do in this space within Australia, here in Tasmania …" (B: 33-36)

"… many of the grads that we took on early in the piece in the Lab are now starting to really develop their careers, develop their skills, and come up as ... have more senior roles in this space, and be very capable of leading projects …" (B: 42-45)

"… we *[the B-eLab]* had some funding freedom to build up an area of expertise and skills and then work out how to fit into the company …" (B: 136-138)

"… certainly at times for us it's a real limiting factor, we've had to not take on projects because we just aren't able to grab people with the right skills at the right time …" (B: 261-263)

"… it's just a really hard thing to do to have all the skills in one company …" (B: 387-388)

5.6.4 Lack of Markets and Draw Through

For many Tasmanian businesses and industry sectors the adoption of ICT-enabled solutions was limited by demand. For example, consumers were often reticent to adopt electronic commerce solutions at this time due to concerns about security of personal and financial information. There was an absence of clear winners and demonstrable solutions in electronic marketing.

While the Tasmanian population was often too small to support significant market growth for a business or industry sector, making the investment in developing and adopting ICT-enabled solutions infeasible, at the same time these businesses were unable to achieve the rapid growth required to meet national and global market demands. Figure 31 reflects that the geographic isolation of Tasmania also played a role in limiting some businesses' ability to export goods to a global market.

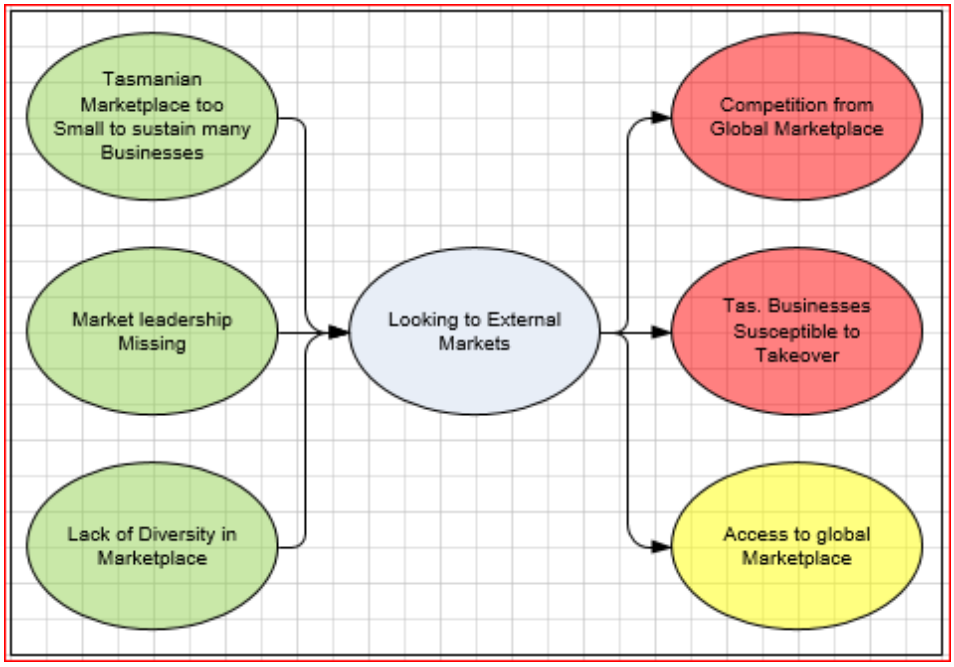

Figure 31. Lack of Markets and Draw Through

The relationships are supported in the following extracts:

"… if they didn't do it *[look to the global market place]* they would be leaving their business susceptible to being overtaken by businesses located in other areas that were learning to deal effectively with their marketplaces around the world …" (D2: 296-299)

"… about AU$20 million invested in schools … *[had]* … attracted several large suppliers to consider having some base in the state …" (F: 163-164)

"… the use of local suppliers, computer suppliers and people that serviced information technology needs …" (A: 271-272)

"… there was the computers in schools, there was the development of local suppliers to service computers in schools …" (A: 106-107)

"… building products that isn't for a Tasmanian market because it mightn't be a big enough market here in Tasmania …" (D1: 92-93)

"… I'd have thought well it's a local market and you might sell a few to visitors whatever else, but they were selling them around the world and it was those sorts of things I think that helped people to get an appreciation of what it could mean to their little business in Tasmania." (E: 118-121)

"… just as easy it is for you to now have the world as your market, don't forget also that I may not walk into your shop now to go and buy that stuff, because I can get a bigger range and depending on the exchange rate, I can go and buy stuff with my credit card and I feel quite safe buying it …" (E: 141-144)

"So the lack of demonstrator and the lack of recognition of the need to drive change through supply chains was not there. In reality, most companies will only change if it is regulated or if the supply chain leader forces it upon them or if the business case is blindingly obvious and demonstrable." (F: 268-271)

"It was challenging at times to get the engagement of the whole customer base in looking at these applications." (B: 146-147)

5.6.5 Innovative Environment

Figure 32 illustrates the programs that were established through the Tasmanian department of Economic Development, the Tasmanian Electronic Commerce Centre, and the In-tellinc incubator to support and foster ICT-based innovation in Tasmania. For some businesses in Tasmania, the innovation processes were difficult to adopt within their established business models.

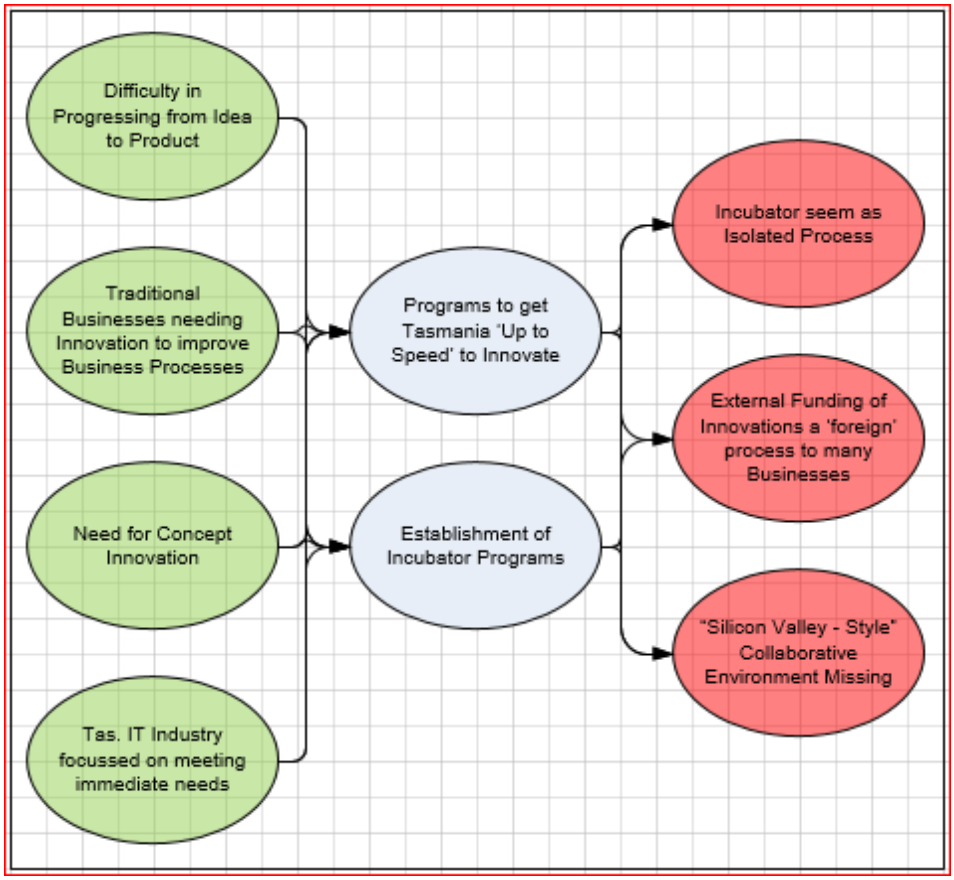

Figure 32. Innovative Environment

The relationships are supported in the following extracts:

"… actually been involved in innovation and entrepreneurship with the Department of Industry, so I felt as if I had a fair bit of ... well I had a good background to recognise the value of these ideas …" (A: 72-74)

"… to take something from an idea and push it all the way through, even within the company, is just fiendishly difficult …" (B: 385-386)

"… the TECC is very much focussing on traditional businesses and working with them to come up with an innovative plan, if you like, to improve their business processes …" (D1: 31-33)

"… no pre-incubation, no post-incubation, in the sense that the incubator was there very much in isolation and what I wanted was a scheme whereby there was concept innovation." (G: 597-599)

"The thinking has changed quite significantly since that time and you know there were programs out there but they were largely for export oriented businesses or start-up businesses based on a new concept or idea. So for the majority of businesses that we were speaking with, the thought of that there would actually be a funding grant of some sort, was completely new to them in their particular area …" (E: 380-384)

"… you had to have the right people in place as well, within those Universities, like for the Silicone Valley type thing, there were very creative, clever, computer people who were there developing all those sorts of things, that got together, fed off each other basically and grew and grew and businesses and their people came in to throw money into those ideas and bang … and then pop, but here that wasn't the way it was … you've had a few people doing some things, but you didn't actually have that software development, or software engineering or hardware engineering or anything like that happening here to be driving that sort of thing, so we just had some clever IT people who were able to develop systems for people that wanted systems, but I don't think that was anything more special than perhaps you would see anywhere else, but what we were trying to do I think was to help get the state up to speed because we were so far behind from where those other places were, just because a population mass point of view." (E: 641-652)

5.6.6 Risk Culture

Figure 33 illustrates two risk amelioration strategies undertaken by ICT funding bodies in Tasmania:

- Reduction of identified risk factors in the adoption of new technologies. This strategy was employed by the Tasmanian Electronic Commerce Centre in its promotion of funding for development of electronic commerce solutions, with Tasmanian SMEs and industry sectors;

- Partially covering the cost of development and commercialisation, in exchange for taking equity in the business that commercialised the ICT project or service. This strategy was adopted by the ICT incubator In-tellinc, which was funded through the Intelligent Island Program.

These strategies had both beneficial and adverse outcomes:

- Proof of concept projects were funded as demonstrations to industry using lead agencies or companies. This outcome was particularly relevant in Tasmania with its high proportion of SMEs in the business sector, and the need to be able to provide concrete, replicable project results that other SMEs could readily adopt;
- An experimental approach could be adopted to determine what development and commercialisation programs were successful in the Tasmanian business environment;
- Business and individual ICT developers could be mentored and guided through the various stages in the adoption of ICT solutions. This outcome was achieved for developers within the In-tellinc incubator, and the Launceston ICT incubator, and via the education and funding programs of the Tasmanian Electronic Commerce Centre;
- Due to the limited funds available, not all relevant technologies could be supported in the stages of development, commercialisation and adoption. This, for example, applied to projects that unsuccessfully applied for admission to the incubators;
- Also due to the limited funds available, and due to the size of the businesses that were funded, there were limitations on the extent to which the business alone could take high risk projects to the level of national prominence, and national markets.

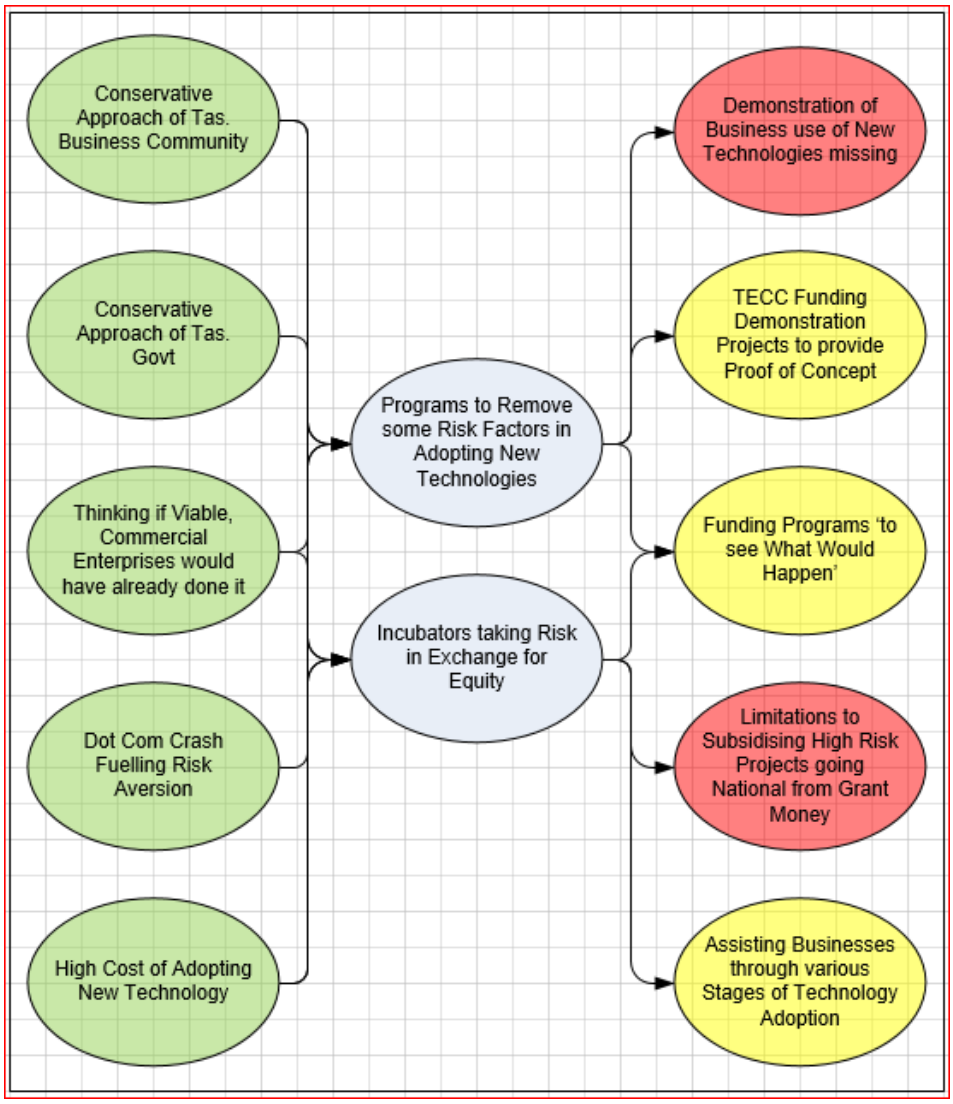

Figure 33. Risk Culture within Tasmania

The relationships are supported in the following extracts:

"… this whole problem of political conservatives was there all the time, you know, "If it's a good idea private industry will fund it …" (G: 234-236)

"… we took a lot of risk out of traditional businesses, developing something simple like a technology uptake or a web strategy by being able to put them through a bit of a wringer of either workshops and training, as to what would be the best result for their business …" (D1: 66-69)

"… it took the risk out of it by us being there helping them through the stages …" (D2: 311-312)

"… how do you take the apparent risk out of it …" (D2: 319)

"… how can you make sure they're not taking a risk that joining a sort of you know a smarter business community in Tasmania …" (D2: 320-321)

"… so we were trying to partner them through the process and remove the risk at each stage …" (D2: 331-332)

"… you're the sort of organisation that can be the risk taking, you know on the edge of it, and if we hadn't been on the edge of it, it would have put the whole thing back ten years." (D2: 348-450)

"… we also encouraged to be the risk taking 'let's fund things that are a bit out there to see what happens'." (D2: 355-356)

"… the role out of the things like TasCOLT we can say we were taking the risk in that stage again." (D2: 535-537)

"The other thing they *[the Tasmanian Government]* established at that time was a unit within Premier and Cabinet that took on high risk projects, I think the acronym was CIPU *[Corporate Information Projects Unit]* but I can't remember and this became a world leader in terms of producing policy and guidelines on project management within the government context." (F: 38-41)

"We are also talking about a time in which we didn't have the contact management systems or even the EFTPOS or the other infrastructure we take for granted now. A lot of that was untried, so small companies saw it as very high risk and there weren't the demonstration projects." (F: 251-254)

"Basically they gave a bucket of money to set up a business, and they did carry some risk …" (G: 92-93)

"I saw a lot of risk *[in BioInformatics proposal]*, more risk than a commercial operation would take but that was part of the expectation that there was going to be more risk taken with this funding than a commercial operation would take, otherwise commercial operations would have already taken it." (G: 119-122)

"MAPP is basically, OK, we're not going to necessarily expect a return, we're going to put the funding out there, and we're going to let people give us a good reason why we should fund their operation and we're going to let them carry the risk and we're going to help them fund it." (G: 250-253)

"... *[IIB]* was also risk averse, they weren't prepared to take the risks." (G: 270)

"… that might have been something we *[IIB]* should have been spending a bit more time on, to assist people to go national. But there's a huge amount of risk, which you can't necessarily subsidise from a grant from an Industry fund. A huge amount of risk." (G: 521-524)

"… they *[Incubator]* take on some risks, and they take some equity." (G: 533)

5.6.7 Horizontal Business Relationships

Figure 34 illustrates the integrated nature of the common inputs, the programs supported, and the outcomes of the joint activities of the Tasmanian Electronic Commerce Centre, and the Intelligent Island Board. Both entities were essentially funded by the Federal Government, and although they had different objectives, there was also a high degree of synergy and collaborative effort between the two bodies.

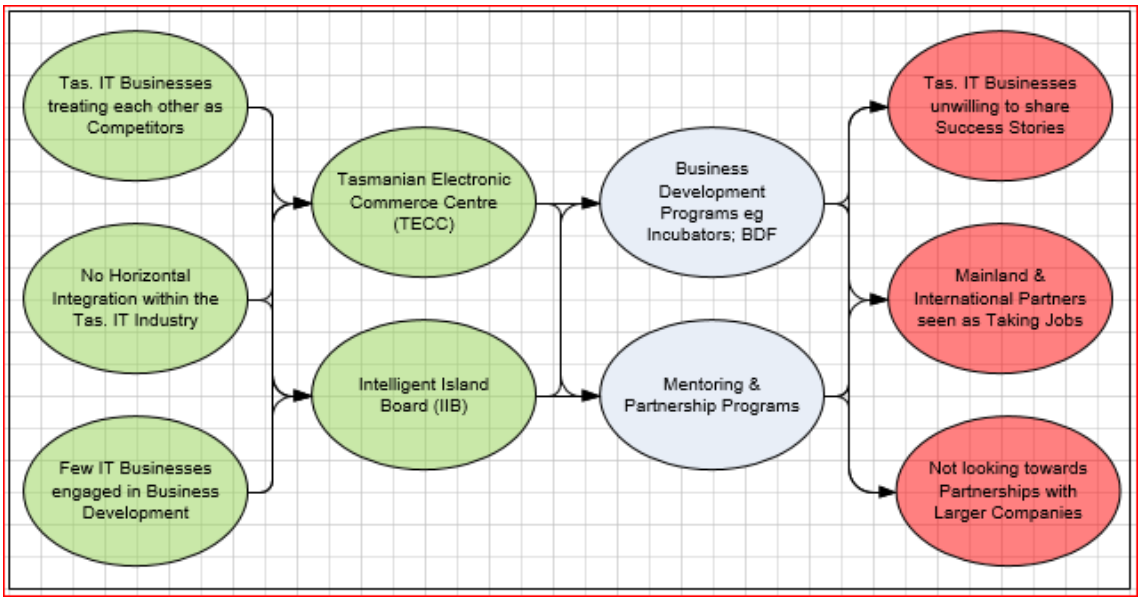

Figure 34. Horizontal Business Relationships

Figure 34 also highlights a number of inhibitors that affected the outcomes of both the Intelligent Island Board and the Tasmanian Electronic Commerce Centre:

- Individual businesses in the Tasmanian ICT industry sector were sometimes secretive with regard to their plans and developments, and behaved in a more competitive, less collaborative manner towards one another and the two funding bodies;
- Rather than being perceived as potential investment partners, businesses that were external to the state of Tasmania were sometimes viewed by local business as being predatory, especially with regard to the relocation of ICT employees from Tasmania to the rest of Australia and internationally. This was particularly evident in the annual exodus of ICT graduates from the University of Tasmania, which was perceived as a 'brain drain' by much of the Tasmanian ICT industry sector. The local sector was unable to often these graduates the same rewarded employment prospects and career options as larger companies with bases in the rest of Australia;
- For similar reasons, companies that were external to Tasmania, particularly those larger in size than local ICT companies, were not perceived as appropriate business partners by many local Tasmanian companies.

The relationships are supported in the following extracts:

"… there was still a perception amongst the recipients of the BDF funding that they were competitors of one another and the industry hadn't got to the point where horizontal integration ..." (G: 397-399)

"… having the infrastructure in which they could move away from this small pool mentality where they were all competing with one another." (C: 402-403)

"… when the IT Industry Council was established it was fairly clear that there was a strong competition amongst the members there and that many of them were not engaged in business development …" (C: 513-515)

"… we actually wanted to be able to say if we fund you we have to be able to tell your competitors what you did, how you went about it and what you have achieved as a result of it …" (E: 367-369)

"There was a lot of tension over that *[bringing in more partnering with larger mainland or international companies]* as well, in that the local industry saw that as taking jobs away, instead of looking at bringing in companies who potentially could establish local relationships, and build up the local industry." (C: 503-505)

5.6.8 Lack of State Government ICT Strategy

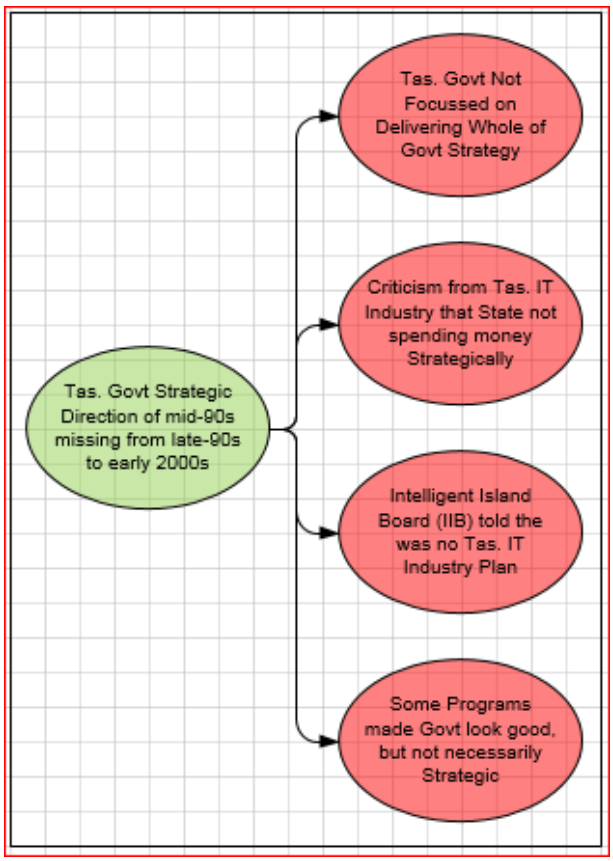

Figure 35. Lack of State Government ICT Strategy

The extent to which the Tasmanian State Government was seen as either having no strategic vision for ICT-related development for the state, or had failed to successfully communicate it, is illustrated in Figure 35. This relates to the period from the late 1990s through to the early 2000s, and is in stark contrast to the strategic lead the Government had taken in this area in the mid-1990s.

The relationships are supported in the following extracts:

"… the whole of government wasn't focussed or didn't have an overall strategy, which is important and the lessons learned from Tasmanian Business Online …" (D1: 123-125)

"… was it used in a strategic way? ... I think that was even a criticism before the Bacon Government, like Steven Haines, ... I think that was a criticism was coming through there, that OK all this money's coming in, ... but you know if only we could get our hands on it and use it strategically ..." (A: 230-233)

"… getting access to the Internet through these online access centres, and it made the government look good, so politically it was good ... strategically, probably not so good." (A: 238-240)

"… there was a very distinct lack of strategy apparent around the sort of years '99 to 2003, compared with the earlier period of the Rundle Government around '96, '97, '98, and while that strategy around '97 was, for example, was based on call centre partnership, partly with Nortel, following the New Brunswick model, at least it was a strategy, whereas later there was a distinct vacuum created there." (C: 471-476)

"… when I was appointed onto the Intelligent Island Board, my expectation was, given that we had just given the government advice on what we thought should happen next, was that we would be able to create initiatives consistent with the Industry Plan. That's why it's interesting when Rhys said there wasn't an Industry Plan …" (G: 30-34)

5.6.9 Tech-wreck

The tech-wreck, which is also referred to as the bursting of the dot.com bubble occurred during the late 1990s and into early 2000. Essentially it was a period of time when billions of dollars were wiped off the value of over inflated ICT-related stock market prices. There was a huge flow on effect both in real terms, such as technology companies filing for bankruptcy, and in terms of the perception that the technology industry was unstable.

5.6.9.1 Funding

Figure 36 reflects perceptions of the Tech-wreck/Dot-Com crash (Wikipedia, 2013) of 2000-2001 when the value of investments in ICT stocks fell sharply for a period of approximately three years, from early 2000 to a low in late 2003.

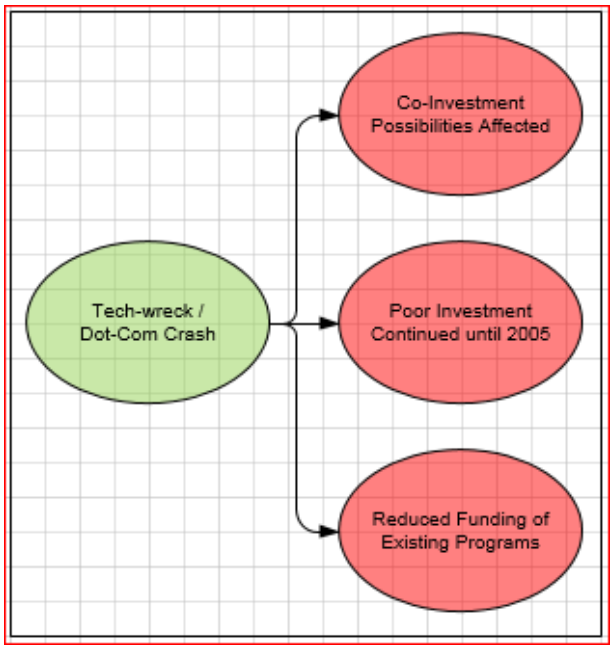

Figure 36. Funding post Tech-Wreck

Within Tasmania the effect of the Dot-Com crash were felt most severely in 2003, with rapidly declining prospects for local ICT businesses, a dramatic decline in enrolments in ICT courses at the University of Tasmania (CIIER, 2011), and widespread loss of confidence in the ICT industry across business and the general community.

The 2003 low of the Dot-Com coincided with the effective end of the Intelligent Island Board, and the Business Development Fund, and a scaling down of the funding and activities of the Tasmanian Electronic Commerce Centre.

The relationships are supported in the following extracts:

"… the 2001 dotcom crash which affected a lot of things and co- investment possibilities and then there was a slowing down after 2000, 2001 to 2002 …" (D1: 80-81)

"… *[tech-wreck put]* a bit of a dent in a lot the programs that were going on where we had the hype of the late 1990's and early 2000's but I would have to say that's when a key thing with us became the level of investment that was going on from about '02 to about '05 was pretty poor …" (D1:159-162)

"I mean multi-national firms of the financial sector didn't know that the crash was coming, so that affected investment." (D2: 350-352)

5.6.9.2 Loss of Impetus

The events discussed in section 5.6.8.1, together with the general loss of confidence in the ICT industry, resulted in a decline of the perceived prospects of the ICT industry across the Tasmanian Government, local business and the general community. The ICT industry no longer had the profile in the media, in government planning and policy, and in education and training as it had assumed over the period of 1997-2001.

Consistent with this loss of confidence in the ICT industry, there was a loss of professionals from the state of Tasmania. This was most evident in such areas as graphic design and multimedia systems.

The ending of a range of ICT funding schemes, some without conclusive outcomes such as the Intelligent Island Board, meant that the momentum for change and development in the Tasmanian ICT industry diminished rapidly, especially in the period from mid-2003 to mid-2004. Much of the previous optimism about the industry was replaced by negative reviews of the outcomes of funding programs such as the Intelligent Island Program by the local media (Parliament Of Tasmania, 2004; Rankin-Reid, 2013; Temby, 2004). See Figure 37.

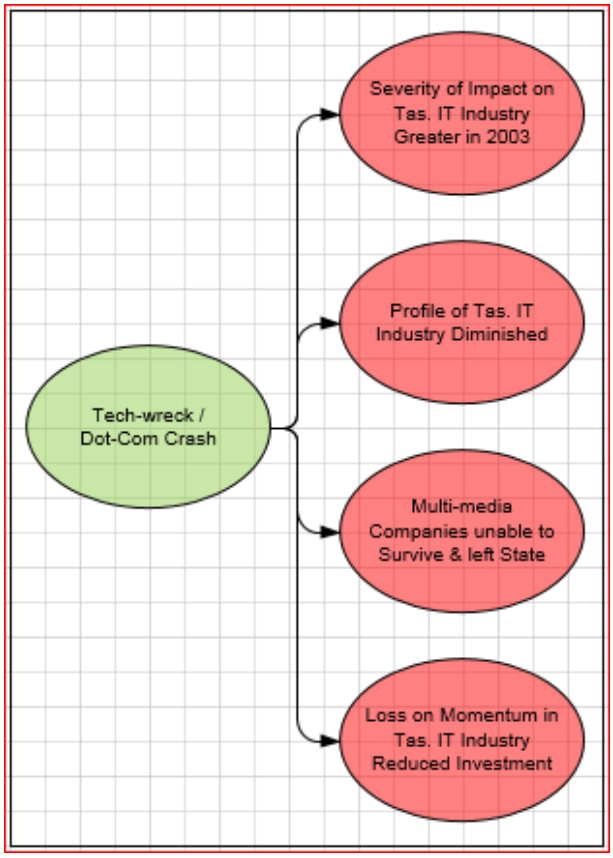

Figure 37. Loss of Impetus post Tech-wreck

The relationships are supported in the following extracts:

"… since 2003 I think the tech-wreck has hit Tasmania more severely than it did 2001 to 2003 …" (C: 350)

"I think the profile of the industry has also diminished as well in that there appears to be almost no forum in which this sort of thing is championed." (C: 352-354)

"The most notable thing about the ICT industry *[due to the tech-wreck]* was a number of multi-media companies packing up and leaving the state, simply not being able to survive here." (C: 289-290)

"I think it's *[the diminished profile of ICT]* more to do with the tech-wreck …" (C: 358)

"… the tech-wreck really from late 2000 meant that IT was on the nose." (G: 228-229)

"… dot.com crash and all that sort of stuff, so that was a big spanner in the works … the investment market was drying up …" (D2: 230-233)

5.7 Summary

This section aims to provide a summary of the findings presented in the previous sections.

5.7.1 Social Good

Elements of the Tasmanian Government recognised the social impact of investment in ICT, particularly from the early 1990s. This was notably evident in the Directions Statement, released by Rundle Liberal Government in April 1997, and carried by subsequent Labor Governments over the period 1998-2004. Coincident with these developments, the partial sale of Telstra provided the means of funding programs that supported these directions. In particular, the formation of the Tasmanian Electronic Commerce Centre, the Computers in Schools program, e-Launceston, the B-eLab in Launceston, Tasmanian Online Access Centres and the Intelligent Island Program all had strong emphases on the delivery of benefits to industry and society across the whole of Tasmania.

The design and delivery of ICT funding programs that maintained policies of equity across all sections of Tasmanian society and industry, were evident in the discussion papers and other information gathered on all of these programs. Given the geographic diversity of the Tasmanian population, the need to provide both equity of access to ICT infrastructure, and universality of ICT service delivery were key challenges for each of these initiatives. Through the conduct of regional forums, and the active soliciting of feedback from regional communities and regional development bodies such as the Braddon Business Enterprise Centre, Northern Tasmania Development, and Launceston Chamber of Commerce and Industry, regional engagement was realised, information gathered, and expectations raised as to the potential benefits of these ICT funding programs. Telstra, through the e-Launceston program, solicited feedback from

the Launceston community and conducted community forums on the roll-out and nature of the Launceston ADSL broadband network.

Outcomes of these programs and concurrent initiatives, such as Tasmania Together and the Towards 2010 Forum, were:

- Raising of basic ICT awareness, and of the potential benefits of broadband Internet access;
- Creation of a generation of school children with a high degree of ICT literacy;
- Significantly enhanced understanding of e-commerce, and the steps required towards participation in the global marketplace, amongst SMEs in Tasmania;
- An enhanced expectation of ICT industry development, and local employment of an increasing number of ICT graduates, as the uptake of ICT initiatives increased within Tasmanian business and government agencies;
- A genuine concern for the maintenance of social equity with the steering committees and boards of many of these funding programs, especially the Intelligent Island Board, largely driven by Senator Harradine.

The causal relationships discussed in Section 5.2 indicate the development of policies and funding programs that had a strong focus on building social capital through the widespread adoption of ICT infrastructure in schools, business and the whole Tasmanian community. The Online Access program demonstrated an approach by which over 90% of Tasmanians had convenient access to online facilities within a short distance of their residences.

The delivery of these programs was achieved by forward-looking governments who saw that the supply of this ICT infrastructure was strategically important to the Tasmanian community, and could not wait for demand to drive the business case for its development.

Figure 9 summarises the focus of the relevant equity polices over this period, namely dealing with Social, Regional/Geographic and Industry-based dimensions of equity,

with specific programs designed to deliver relevant outcomes across each of these dimensions.

5.7.2 ICT Industry Development

In 1996 the Nixon Report highlighted the need for industry development, assisted by government funding programs. This report formed a basis of the Direction Statement in 1997, and indirectly led to the ICT Industry Audit in 1998. A key component of these funding programs was the desire to establish sustainable ICT industry groups within Tasmania, either directly through the injection of government funding, or through joint ventures with private enterprises. This became a major task of the Intelligent Island Board as it sought, unsuccessfully, to identify and attract a major investor to Tasmania to support the ICT Centre of Excellence initiative.

While industry clusters, such as the businesses funded through the Business Development Fund in Launceston, in conjunction with the B-eLab, were established, the sustainability of such clusters was not realised. In-tellinc, the ICT business incubator in Hobart, worked collaboratively with the University of Tasmania, the Tasmanian Government and local ICT industry to enable new ICT graduates to commercialise their innovations.

Unfortunately, these initiatives culminated on the same time-frame as the Tech-wreck, and consequently many of the ICT industry development initiatives did not deliver long term outcomes. A small number of ICT companies, mainly in Hobart, did receive funding that enabled them to develop sufficiently to become national competitive.

The work of the Tasmanian Electronic Commerce Centre was particularly instrumental in enabling many Tasmanian SMEs and industry bodies to establish themselves in the global electronic marketplace. However, the wide diversity of TECC activities, and the large number of companies and industries that received funding, has meant that measurable outcomes of the TECC programs are not available.

A further outcome of these industry development initiatives was an enhanced understanding of the potential of ICT-enabled change throughout the Tasmanian Government and industry. This increased awareness was also fostered through the activities of the Australian Computer Society, TasIT, and the ICT Industry Advisory Council, which had direct access to the Tasmanian Premier and Minister for ICT.

A key factor in ICT industry development was the achievement of a threshold in business expansion that would enable a company to compete at a national and international level. The predominance of small businesses in the ICT sector meant that very few ICT companies reached this threshold.

While some programs, such as the In-tellinc incubator, worked with individual companies, other programs such as those operated by the Tasmanian Electronic Commerce Centre, sought to operate at a whole-of-industry sector level. This was a viable approach in Tasmania because most industry sectors contained less than 250 businesses, and the key people involved could be readily called to a meeting at a convenient, central location.

Figure 13 highlights the issues that inhibited the formation of business clusters, specifically in the programs funded by the Tasmanian Electronic Commerce Centre. This was a key issues across all funding programs, in that business cluster formation and retention was often limited by a lack of a strategic oversight of the ICT industry sector, intense competition between individual businesses, and between regions, and a focus on short-term business outcomes, rather than longer term projects that would leverage a return on investment through the adoption of standardised and integrated ICT infrastructures. The ad hoc promotion and adoption of electronic commerce solutions by the ICT industry was an example of this short term approach, while longer term infrastructure building approaches were not seen as worthy of investment by individual companies, and by Tasmanian State Government agencies.

5.7.3 National Demonstration Projects

During the late 1990s Telstra identified Launceston as a regional centre in which to trial a number of national demonstration ICT projects. Part of this approach was to use the Launceston community to conduct market acceptance testing of new ICT products. Launceston was chosen as being representative of regional Australia, and also linked to the Tasmanian component of funding realised through the sale of Telstra. The B-eLab was contracted by Telstra to conduct customer acceptance testing, as part of the latter stages of the e-Launceston project.

A design factor in many of the Tasmanian ICT funded programs, was a requirement that the outcomes be scalable to larger communities, and be transferable to other regions in Australia.

This focus on scaling demonstration projects from the regional to national levels operate to the benefit of the Tasmanian community as an early adopter and trialler of new technologies. For example, experimental streaming of live video content to e-Launceston customers was conducted over the ADSL broadband network. Telstra also frequently conducted on-line surveys of e-Launceston customers to determine Internet usage patterns, gauge service satisfaction, and to promote the trialling of new applications. Unfortunately, long-term engagement with the local community was not realised, and so these early experiments did not translate into sustainable outcomes, partly due to the limited funding, and also to the lack of long term business drivers supporting the continuation of these programs.

The Intelligent Island Board sought to develop a model of regional ICT industry development in Tasmania, with the objective of providing a basis for successful regional ICT industry development throughout Australia.

Tasmania was provided with a range of opportunities to establish national demonstration projects through the e-Launceston, Telstra B-eLab, Tasmanian Electronic Commerce Centre, and the Intelligent Island Program. Figure 17 summarises a range of incentives and outcomes associated with some of these programs.

Consideration of the range of issues covered in Section 5.4 indicate that many of these funding programs failed to capitalise and deliver national demonstration projects because of a lack of management of the achievement of the outcomes of these projects. In many cases the projects were completed without adequate review of the outcomes of the projects and publication of learnings derived from these projects. Reviews were undertaken by graduate students at the University of Tasmania, but the publications from this research was largely limited to academic audiences, rather than the wider business and government community in Australia.

5.7.4 Engagement

Linkages between industry bodies, between the Tasmanian Government and industry, and between the University of Tasmania and industry were high priorities of the Tasmanian Electronic Commerce Centre, Intelligent Island Program, and the Business Development Fund. The enhancement of linkages with the wider community was an objective of the Computers in Schools, Tasmanian Online Access Centre and e-Launceston programs. Concurrent with these initiatives the Tasmanian Government conducted a number of regional community forums to formulate the Tasmania Together vision.

The Tasmanian Electronic Commerce Centre was very active in engagement with Tasmanian SMEs through their EC Aware, EC Ready, EC Enable and EC Business programs that progressed businesses from early stages of e-business awareness through to relatively mature adoption of e-business solutions. Research staff and students at the University of Tasmania engaged with Tasmanian SMEs through the TECC as a business portal, and conducted research into the patterns of adoption of e-commerce across a broad range of industries.

It is doubtful whether such engagement across a wide spectrum of business, industry groups, government, and research groups would have occurred without the support of these regional ICT programs. Several interviewees indicated that more engagement with industry and the Tasmanian community could have been realised through these programs. One inhibitor of this wider engagement was the fragmented nature of the

funding programs, and the lack of coordination of these programs at the Tasmanian state level. Each program sought engagement with industry sectors and the community in a distinct fashion, and such engagement efforts had the potential to duplicate contacts or to not deal with the target group in a holistic manner.

Engagement between government agencies, funding bodies, industry sectors, ICT research and development units, and businesses in the ICT industry sector was a critical factor in delivering the beneficial outcomes of the ICT projects over this time period.

Consideration of the causal diagrams in Section 5.5 indicates that each of the relevant organisations had a focus on engagement with some of the other players mentioned above. Further, many of these funding bodies recognised the inhibitors to effective engagement, and actively worked to ameliorate relationships. For example, Figure 24 illustrates the issues faced by the Intelligent Island Board in establishing and maintaining engagement with Tasmanian industry.

There was no coordination body at the Tasmanian State Government that fostered such engagement, and could provide a convenient conduit through which productive relationships could be facilitated. This was not the role of the Tasmanian IT Industry Council or the ICT professional bodies, and was not a role adopted by the Tasmanian Department of Economic Development.

5.7.5 Supply and Demand

One aspect of the Tasmanian industry was a focus on the local, small-scale market, which led to excessive competition in some areas. This also applied to businesses in the Tasmanian ICT industry, and inhibited the formation of ICT industry clusters, risk taking, and establishment and maintenance of a culture of innovation. While the In-tellinc ICT incubator, the Business Development Fund, Intelligent Island Board and the Tasmanian Electronic Commerce Centre all sought to build and sustain clusters of ICT businesses in Tasmania, this largely failed because of the restricted size of the Tasmanian ICT industry, and the overly competitive nature of many businesses when applying for funding, and consuming those funds.

The geographical dispersion of businesses in Tasmania, with centres in Hobart, Launceston and Burnie, and the distinct nature of business cultures in each of these centres, meant that often businesses were unwilling to form liaisons with other industry players across the state of Tasmania. An exception to this was the established industry groups, such as apple and pear growers, pyrethrum growers, fishing industry, and dairy industry who obtained funding through the Tasmanian Electronic Commerce Centre and sought to develop e-business solutions at a whole-of-industry level.

While the Computers in Schools in Tasmanian schools produced students with a high degree of proficiency in the use of ICT, by the time these students had progressed to University entrance age, the Tech-wreck had significantly reduced the attractiveness of ICT careers, and so relatively few of these students progressed to ICT degrees at university. Indeed, the over familiarity with ICT at school may have had a dampening effect upon the attractiveness of ICT degrees at university for these students.

The University of Tasmania offered a degree in Computer Science from 1984, and a degree in Information Systems from 1997. However, the flow of students through these degrees was limited until the late 1990s, when both Computing and Information Systems enrolments grew significantly. As in most Australian universities, the enrolments in ICT programs dropped dramatically from 2002 onwards, following the publicity associated with the Tech-Wreck.

Being the only tertiary education provider located in Tasmania, the University of Tasmania was the dominant source of ICT graduates over the 1990s and 2000s. The supply of graduates more than met the demand from local industry and government, and a large number of graduates left Tasmania to seek employment, with few returning. Overall this created a drain of ICT skills and knowledge from Tasmania, especially amongst graduates in their early twenties, and limited the capability of the local ICT industry to expand. Further, the total number of ICT graduates produced annually in Tasmania was insufficient to attract major ICT investors to the state.

The economics of supply and demand of ICT services was a major issue for all of the ICT funding programs over this period. Each funding body needed to adopt a supply-driven strategy towards the promotion of the adoption of ICT infrastructure and ICT business solutions. The expectation was that demand would accelerate with increased supply. However, compounding factors such as achievement of thresholds of business adoption and of related business activity, meant that resultant demand frequently did not match the expectation of the ICT funded projects.

5.7.6 Implications of these Findings

From the above analysis and consideration of the findings of this research, the following implications have been identified for policy and decision makers, with regard to the design and administration of regional ICT funding programs:

- If the objectives for regional ICT funding programs are not defined then the success of such programs cannot be measured against success criteria that are aligned with such objectives.

  Specifically, if the potential outcomes of regional ICT funding programs are not envisaged, then the definition and operationalisation of measures of success of such programs cannot be aligned with project goals that seek to realise such outcomes.

- The management of a number of related ICT funding programs by state and federal agencies, aimed at a regional area, requires coordination at state and/or federal government levels;

- It is unrealistic to expect that the successful outcomes of an ICT funding program will emerge by chance.

- In order for the objectives of regional ICT funding programs to be aligned with the business goals of an industry sector, the funding agencies of such programs need to understand these business goals.

- In order for the objectives of regional ICT funding programs to be aligned with the regional politics, business culture, and the profile and aspirations of the

target community, such factors need to be understood and appreciated by the funding agency of such programs.

- Development and attraction of skills and knowledge in the technical areas of ICT and in ICT-enabled business need to be undertaken concurrent with, or even prior, to the delivery of these ICT funding programs in order to ensure that the appropriate mix of capabilities are present for ICT uptake, ICT business development and appropriate ICT business investment attraction to occur.

Emergent Model

It can be seen from the above findings of this exploratory research that ICT-related regional development is a complex and diverse 'process' that requires the timely convergence of a myriad of initiatives. However, based on the findings of this research the model presented in Figure 37 has emerged.

It is proposed that this emergent model for successful ICT-related regional development initiatives would form the basis for formulating hypothesis that may be tested in future experimental research.

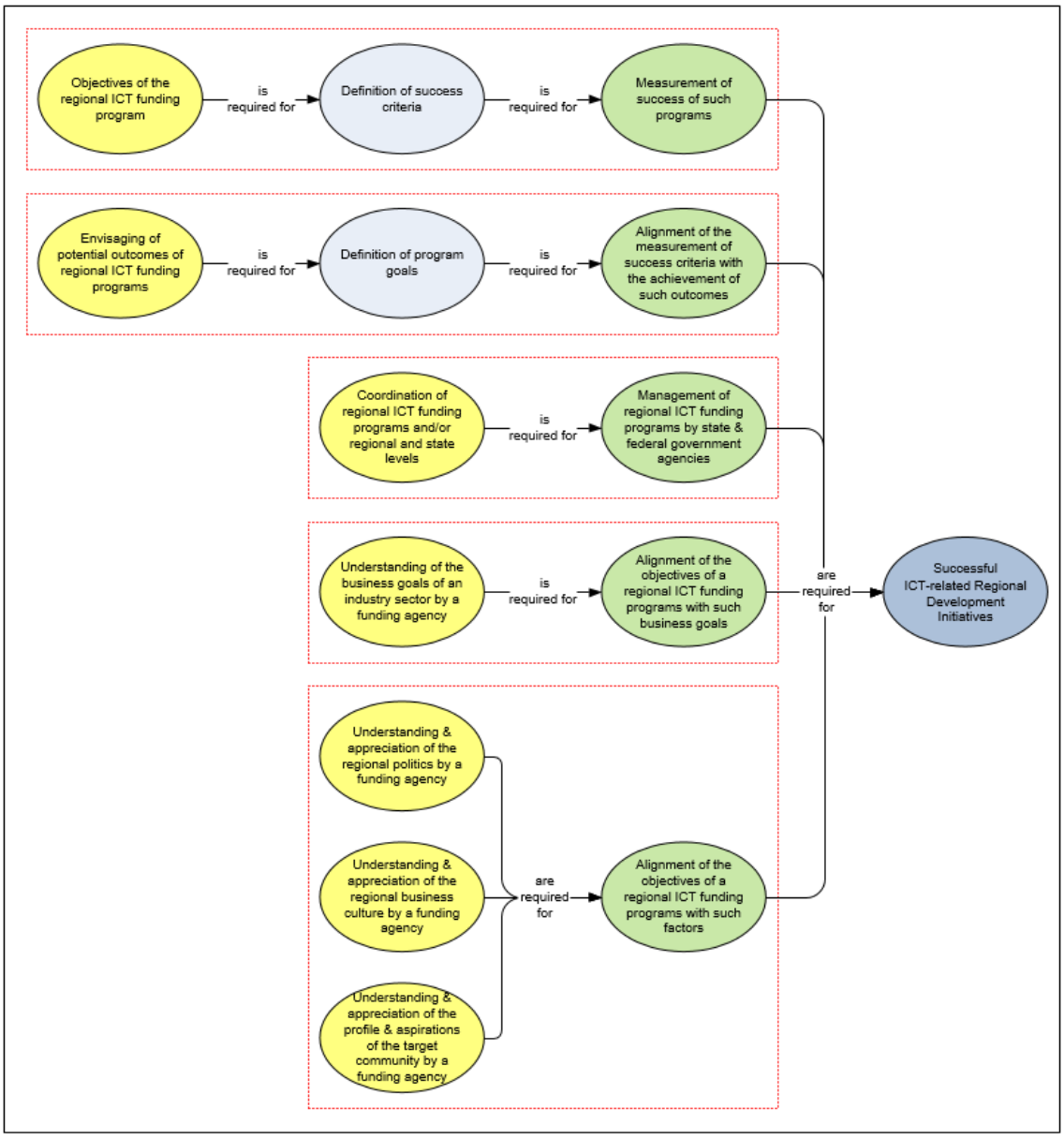

Figure 38. Emergent Model for ICT-Related Regional Development Initiatives

Chapter Six – Conclusions

6.1 Introduction

This research program has focussed on a number of publically funded programs that have sought to deliver the benefits of ICT to a regional economy. The ICT funding programs were administered over the period from 1996 to 2005 in the state of Tasmania.

Through interviewing a number of key participants, the diverse and complex nature of the relationships between input factors and the perceived outcomes of these ICT funding programs have been investigated. The research method has involved the gathering of data via semi-structured interviews from participants who have been identified as being actively involved in the ICT funding programs being considered over the period 1996 to 2005. These interviews were transcribed and analysed qualitatively to identify the causal relationships present in the data, as stated by the participants. As detailed in section 3.6.1, to graphically show the relationships in the data, sets of causal diagrams were developed, and these are discussed in Chapter 5 Findings.

In all stages of the research methodology the groundedness of the analysis has been maintained, through reference to the transcripts of the interviews, and validation of the findings against the transcripts.

6.2 Research Objectives

This research sought to address the following objectives:

- *To identify the relevant input factors, perceived outcomes and associated relationships, that characterise the impact of ICT development programs in regional Australia;*
- *To develop a preliminary model of these input factors and perceived outcomes, based on interviews with senior managers and other documentary evidence available on a selected range of Nationally funded ICT development programs in Tasmania over the period 1996 to 2005.*

This research was exploratory in nature, and was intended to produce a preliminary model of the input factors and perceived outcomes of Nationally funded ICT development programs in regional Australia.

6.3 Research Questions

This research focussed on the following research questions:

RQ 1: What are the input factors and perceived outcomes in a selected range of Nationally funded ICT development programs in Tasmania over the period 1996 to 2005?

The analysis of the data gathered in this research program has partially answered this research question in the following ways:

- The input factors and the perceived outcomes of the selected range of nationally funded ICT development programs in Tasmania have been identified through causal analysis of the interview transcripts. While the analysis generated causal maps, the intermediate concepts and actions could be removed, leaving only the input factors and output responses present in the data.
- Cross-case analysis has enabled the researcher to identify relationships between input factors and response outcomes that are common across multiple interviewees, and so may be considered to be supported by evidence from multiple participants in the research program.

RQ 2: What are the relationships between these input factors and perceived outcomes in this selected range of Nationally funded ICT development programs in Tasmania over the period 1996 to 2005?

The analysis of the data gathered in this research program has partially answered this research question in the following ways:

- The relationships between input factors and the perceived outcomes of the selected range of nationally funded ICT development programs in Tasmania have been identified through causal analysis of the interview transcripts.

- Cross-case analysis has enabled the researcher to identify relationships between input factors and response outcomes that are common across multiple interviewees, and so may be considered to be supported by evidence from multiple participants in the research program.

RQ 3: What are the implications of the findings of this research for policy and decision makers, and administrators of funded ICT development programs in regional Australia?

The implications of the Findings in Chapter 5 have been discussed in the summary of that chapter. These implications have been abstracted to the level of consideration by policy and decision makers in the area of ICT funding programs. This discussion has partially addressed the Research Question 3.

6.4 Main Contributions of this Research

A review of the literature suggested that a significant segment of the published material focussed on the development of quantified models that describe the costs and benefits of ICT funding programs. These models often deal with macro-economic issues, or employ simplified assumptions regarding the actual impact of such funding programs.

This research program has sought to develop a deeper understanding of the nature of the intended and actual impact of ICT funding programs upon regional Australia by adopting an interpretive approach. Eight interviews with senior managers were used as the primary source of data to develop a deep understanding of the relationships between input factors and outcomes of ICT grant funding programs, using an emergent, qualitative approach to the analysis. This research sought to develop a basic model of ICT grant funding programs based on those eight interviews.

Consideration of the Findings in Chapter 5 has led to a number of implications for policy and decision makers in the area of ICT funding programs. These implications represent the major practical contributions of this research, and provide advice to practitioners working in the area on issues to be considered when planning ICT funding programs.

6.5 Limitations of the Research

This research program is exploratory in that it has sought to build a preliminary model, based on the data gathered from these participants.

No generalisation is claimed beyond the scope of the data gathered in this research, in terms of time, geographic location, participants and nature of ICT funding programs being considered.

The reader of this research thesis may engage in naturalistic generalisation in which they consider the wider implications of the findings of this research within their own context and knowledge. This researcher in this thesis does not claim that such naturalistic generalisations follow from this analysis and research.

The researcher acknowledges the limitations of the current research program, in terms of the interviewees selected, the timing and nature of the semi-structured interviews, and the subjective components of the qualitative analysis of the data.

6.6 Further Research

This research program has been exploratory and proposed a number of relationships, based on data gathered from participants in ICT funding programs in Tasmania between 1996 and 2005.

This research program is also exploratory in that it has sought to build a preliminary model, based on the data gathered from these participants.

As further research these relationships need to be tested and validated on a wider range of case that deal with ICT funding programs in a range of regional contexts. Such evaluation would necessary lead to a revision of the current findings and extension to further data.

Further explanatory research may be undertaken to seek to understand the nature of the causal relationships that have emerged in this research, and postulate explanatory mechanisms for these relationships.

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Appendices

Appendix A: Interview Cover Letter

School of Information Systems
University of Tasmania
Private Bag 87
HOBART TAS 7001

Date:

Interviewee's Name
Interviewee's Address

Dear

You are invited to participate in a research project that seeks to identify and analyse the factors in the development and maintenance of an information precinct in regional Australia.

This research is endeavouring to gain the understanding, insights, and perceptions of the key community and project leaders of these projects in the Launceston region.

You have been identified as one of the key leaders who have made a significant contribution to these projects.

Attached is an information sheet that outlines the research purpose and procedures, and also provides a list of contact persons.

I look forward to communication with you regarding your involvement in this research at your earliest convenience.

Dean Steer
PhD Candidate
School of Information Systems

Appendix B: Interview Information Sheet

Date:

You are invited to participate in a research project entitled **"**identification and analysis of factors in the development and maintenance of an information precinct in regional Australia". The project will form part of Dean Steer's Ph.D. in Information Systems, under the supervision of Professor Chris Keen at the University of Tasmania's School of Information Systems.

This research is endeavouring to gain the understanding, insights, and perceptions of the key community and project leaders of these projects in the Launceston region. A study of relevant documents and literature has revealed that you are one of the key leaders who have made a significant contribution to these projects.

Purpose of the Research

The Australian Federal Government, through the Launceston Business Development fund, made funding available to stimulate and encourage service providers to develop innovative, new, high tech business applications and content in the Launceston region. The research in question seeks to understand the intention of the high tech business applications and content, what was actually achieved, and what perceived outcomes are emerging. It will focus on both the negative and positive outcomes, including those not anticipated in the original plans, and will identify the issues and factors that have become the activators, inhibitors, and switch points of ICT-enabled regional development.

Participant Benefit

This applied research project aims to produce important research findings of interest to both academics and practitioners into the role of different factors in encouraging and supporting the development and sustainability of high tech business applications and content activity in an Australian regional economy. It is also anticipated that the project will contribute to a rising of awareness of the potential of regionally based information

and communication technology (ICT) activity to generate a range of socio-economic benefits in a regional area.

Research Procedures

If you agree to participate, you will be interviewed by Dean face-to-face for approximately one hour in length at a time and location mutually agreed upon. The interview questions will focus on your involvement in the development the of policies of the Launceston Business Development fund, your understanding of the intended outcomes of these policies, the actual outcomes and their assessment, and any lessons that you believe have been learnt through this process.

With your permission, the interview will be audio recorded. A transcript will be produced of the interview and you will be given an opportunity to peruse it, and if required, you will be able to edit, modify or withdraw it if necessary.

Identification

Please note that a list of the names of all interviewees will be included in an appendix to the thesis. It follows that you will be identifiable as a participant in this study. However, no specific statement you make that is cited or paraphrased in the thesis or other research output will be identified as having been made by you unless you give your express permission to do so. You do need to realise, though, that the nature of the statement in question could make it potentially identifiable. If this is of particular concern to you, please carefully peruse the transcript of your interview, and either remove data that is potentially identifying or otherwise stipulate how that data may be presented.

Confidentiality

The only people who will have access to the either the audio recording or the transcript of the interview will be the Chief Investigator and the Primary Researcher. The electronic form of the data will be stored on a secured computer server within the School of Information Systems. These files will be password protected to prevent

unauthorised access. Any documentation will be secured in locked storage accessible only be the Chief Investigator and the Primary Researcher.

The data will be securely stored at the University of Tasmania for five years, after which it will be destroyed under appropriate supervision.

Contact Persons

The contact persons for any questions relating to this research project are:

Professor Chris Keen,
Chief Investigator
Phone: (03) 6226 6200
eMail: Chris.Keen@utas.edu.au

Dean Steer,
Primary Researcher
Phone: 0419 381 772
eMail: Dean.Steer@utas.edu.au

Ethics Approval and Contacts

This research project has received ethical approval from the Human Research Ethics Committee (Tasmania) Network, which is constituted under the National Health and Medical Research Council. The Committees under the HREC (Tasmania) Network use the National Statement on Ethical Conduct in Research Involving Humans to inform their decisions. If you have any concerns of an ethical nature or complaints about the manner in which the research project is conducted, you may contact the Acting Executive Officer of the Network, Marilyn Pugsley, Ph (03) 62 26 7479, email: Marilyn.Pugsley@utas.edu.au.

Results of Investigation

The overall results of this research will be compiled as part of a Ph.D. thesis. Access to the findings of the research can be obtained by making a request to Dean Steer, using the contact details provided above.

Information Sheet and Consent Form

Please note that your participation is entirely voluntary and evidenced by signing a consent form. In any case, you can decline to answer any question, and can withdraw from this research project at any time without effect or explanation. You can also elect to withdraw any data you have contributed to date. You should retain both this Information Sheet and a copy of the Consent Form.

Thank you for taking the time to read this information sheet. We hope you will be willing to participate in this study. If so, you can contact Dean either by phone on 0419 381 772 or by email at Dean.Steer@utas.edu.au.

Professor Chris Keen	Dean Steer
Chief Investigator	Primary Researcher

Appendix C: Consent Form

Comparative Historical Analysis of ICT-enabled Development
Sited in Launceston, Tasmania

1. I have read and understood the 'Information Sheet' for this research.
2. The nature and possible effects of this research have been explained to me.
3. I understand that this research involves a face-to-face audio-taped and transcribed interview of approximately one hour in length on your involvement in the development the of policies of the Launceston Business Development fund, your understanding of the intended outcomes of these policies, the actual outcomes and their assessment, and any lessons that you believe have been learnt through this process.
4. I understand that all research data will be securely stored on the University of Tasmania premises for five years, and then destroyed.
5. Any questions that I have asked have been answered to my satisfaction.
6. I agree that research data gathered from me for this research project may be published provided that no comments or quotes will be directly attributed to me in any research publication unless I give my express permission for it to do so.
7. I understand that the researchers will include my name in a list of all interviewees in an appendix to the thesis.
8. I agree to participate in this research and understand that I may withdraw at any time without any effect, and if I so wish may request that any data I have supplied to date be withdrawn from the research.

Name of Participant:

Signature: Date:

Statement by Investigator

☐ I have explained this research project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he / she understands the implications of participation.

If the Investigator has not had an opportunity to talk to participants prior to them participating, the following must be ticked.

☐ The participant has received the Information Sheet in which my details have been provided so that participants have had opportunity to contact me prior to them consenting to participate in this project.

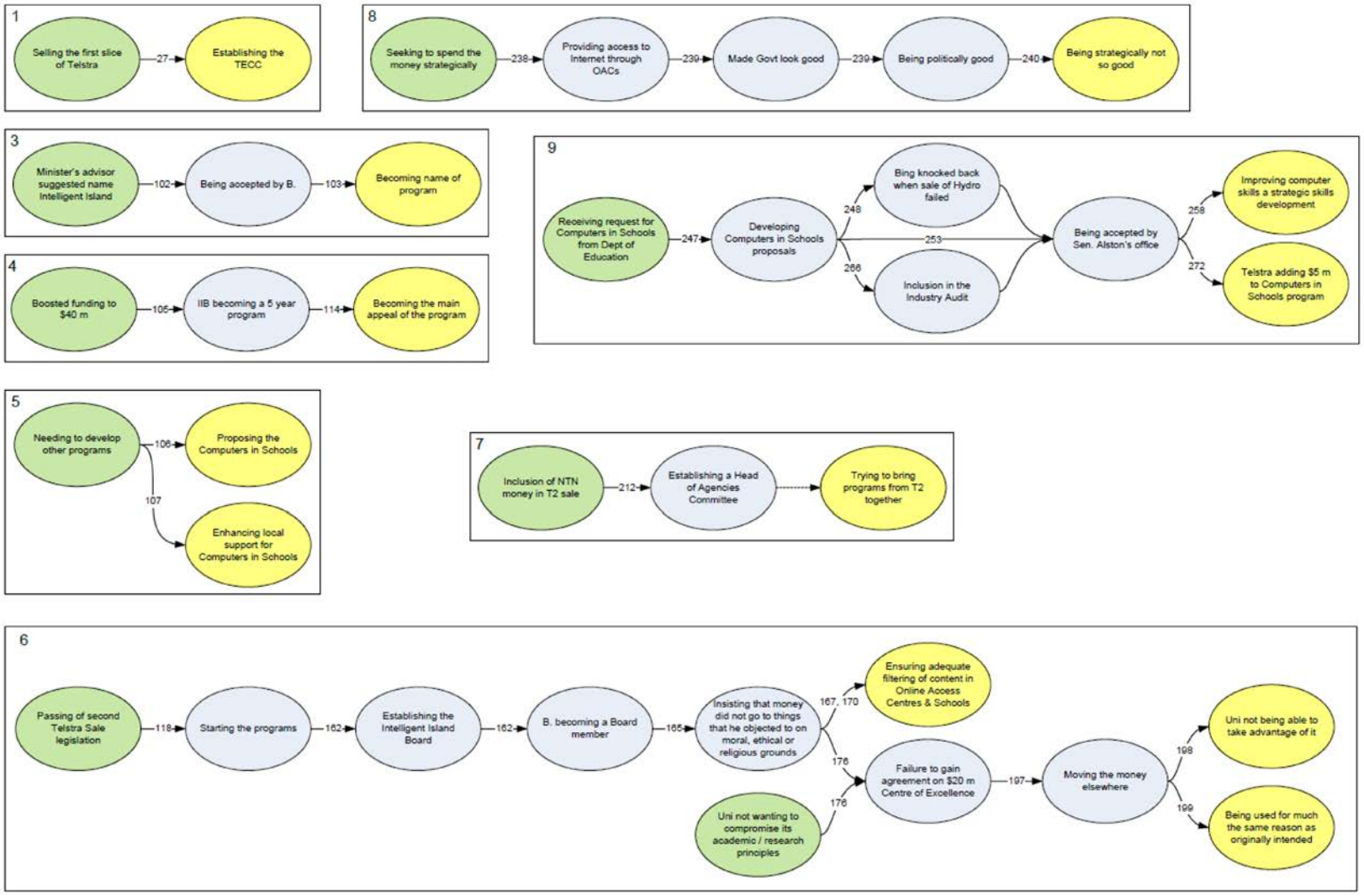
Name of Investigator:

Signature:	Date:

Appendix D: Interview Schedule

- What was your involvement in the project / policy development?
- What was the intent for the project?
- What part did you play in the rollout?
- At the time, how were the intended outcomes to be assessed?
- With hindsight, what outcomes have been achieved?
- What lessons have been learnt?

Appendix E: Causal Relationship Diagrams



Interviewee A-1
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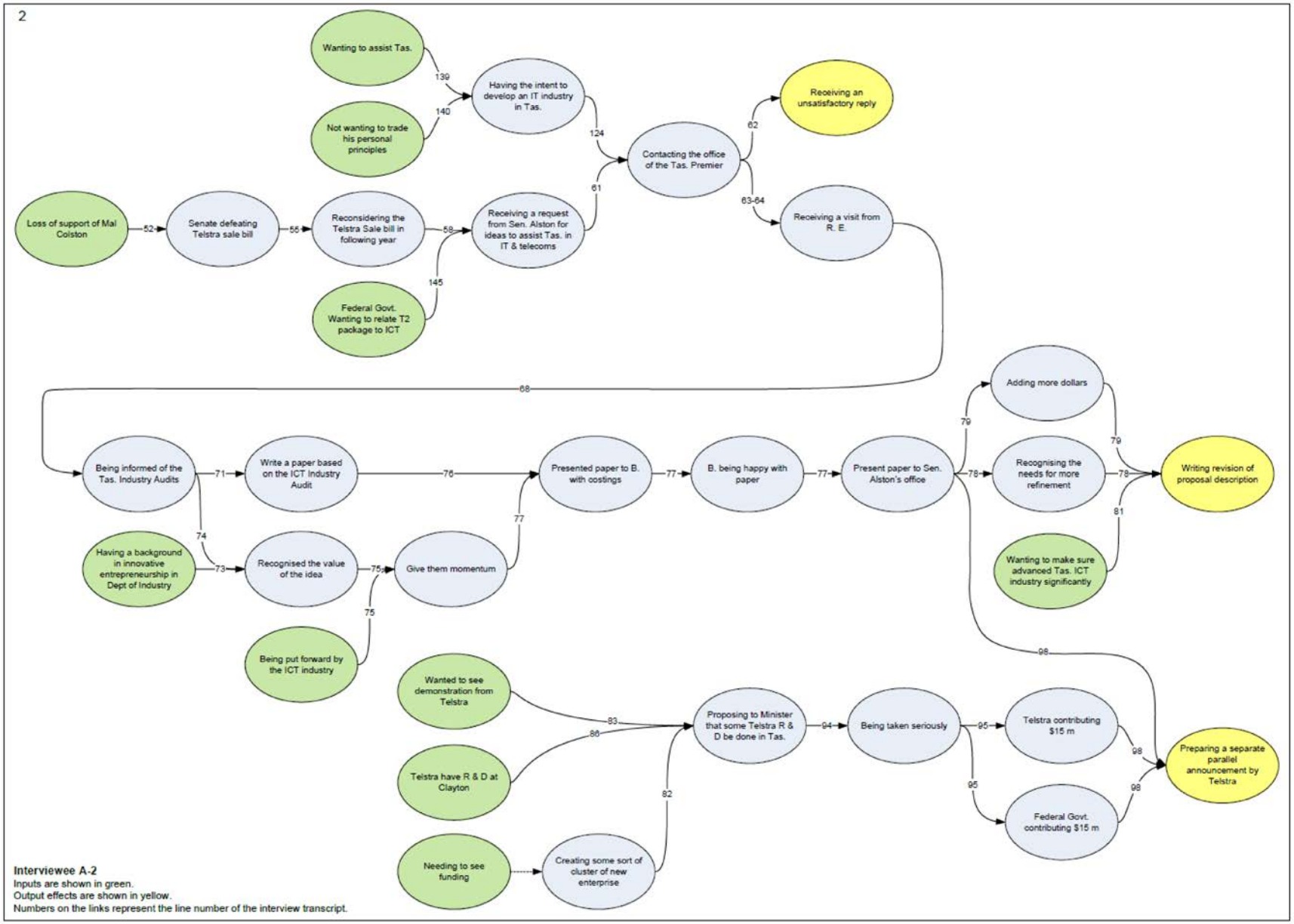
Numbers on the links represent the line number of the interview transcript.


2
Wanting to assist Tas.
Not wanting to trade his personal principles
Having the intent to develop an IT industry in Tas.
Contacting the office of the Tas. Premier
Receiving an unsatisfactory reply
Receiving a visit from R. E.
Loss of support of Mal Colston
Senate defeating Telstra sale bill
Reconsidering the Telstra Sale bill in following year
Receiving a request from Sen. Alston for ideas to assist Tas. in IT & telecoms
Federal Govt. Wanting to relate T2 package to ICT
Being informed of the Tas. Industry Audits
Write a paper based on the ICT Industry Audit
Presented paper to B. with costings
B. being happy with paper
Present paper to Sen. Alston's office
Adding more dollars
Recognising the needs for more refinement
Writing revision of proposal description
Wanting to make sure advanced Tas. ICT industry significantly
Having a background in innovative entrepreneurship in Dept of Industry
Recognised the value of the idea
Give them momentum
Being put forward by the ICT industry
Wanted to see demonstration from Telstra
Telstra have R & D at Clayton
Needing to see funding
Creating some sort of cluster of new enterprise
Proposing to Minister that some Telstra R & D be done in Tas.
Being taken seriously
Telstra contributing $15 m
Federal Govt. contributing $15 m
Preparing a separate parallel announcement by Telstra
Interviewee A-2
Inputs are shown in green.
Output effects are shown in yellow.
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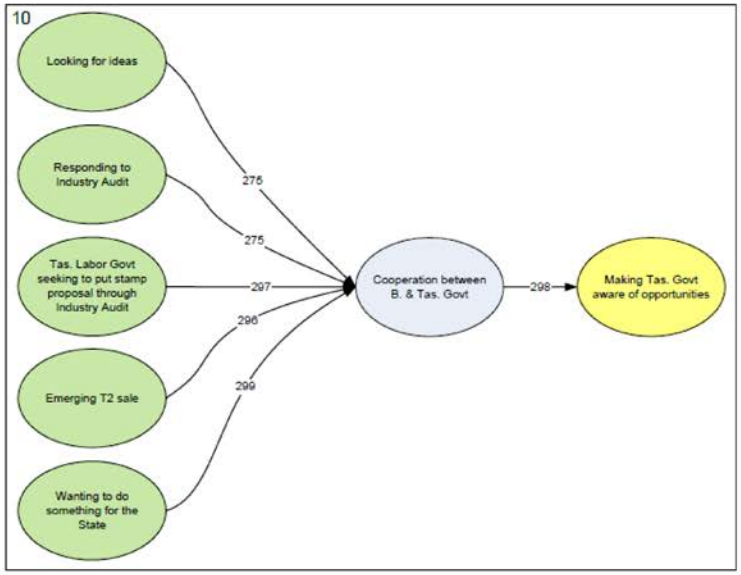

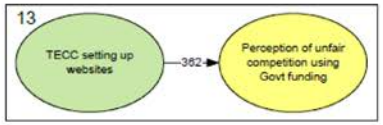

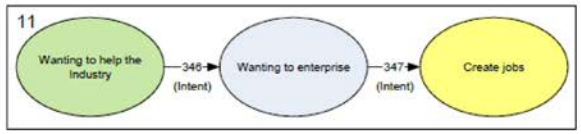

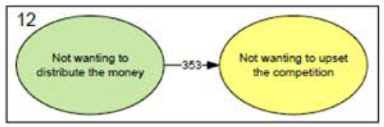

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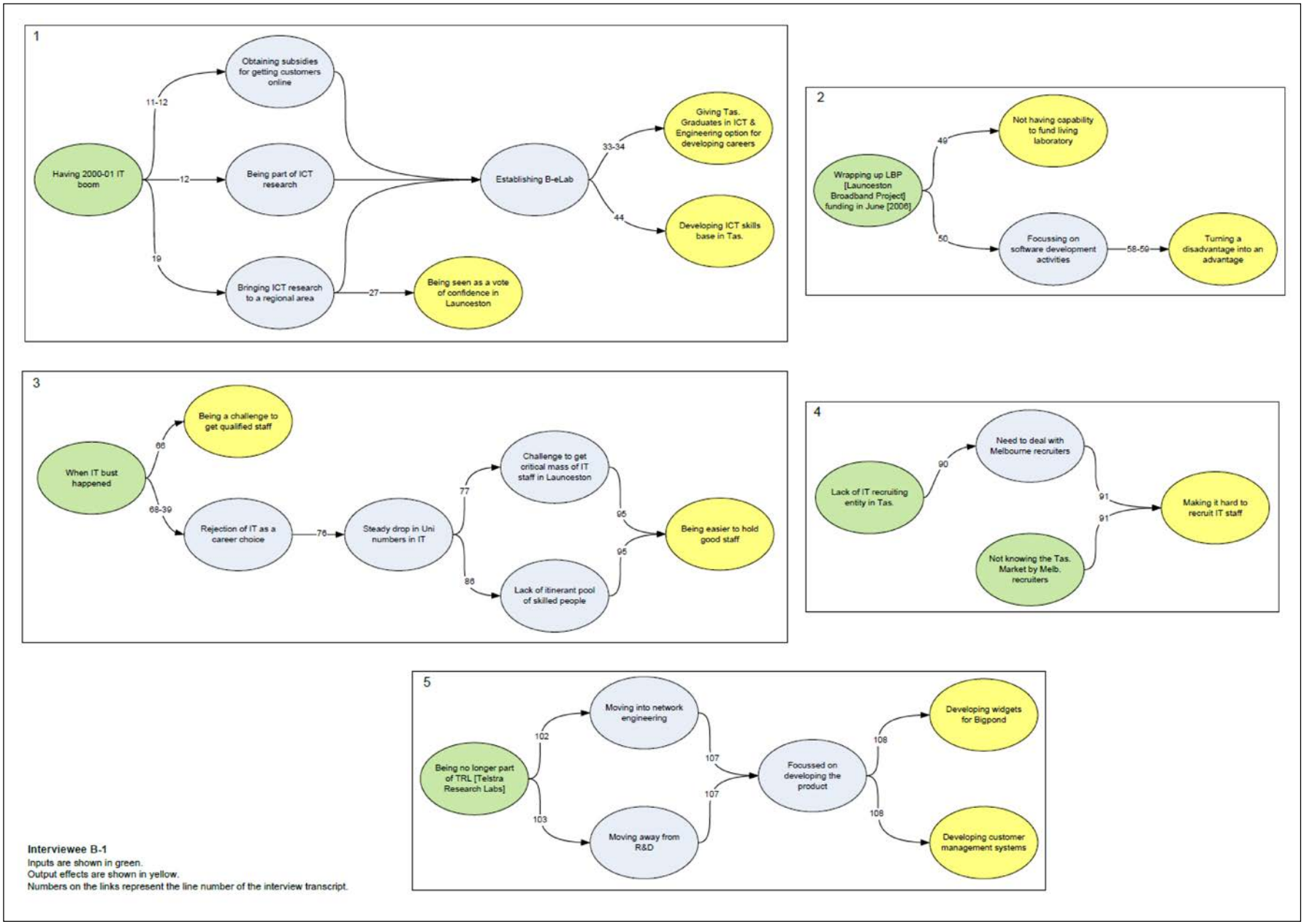

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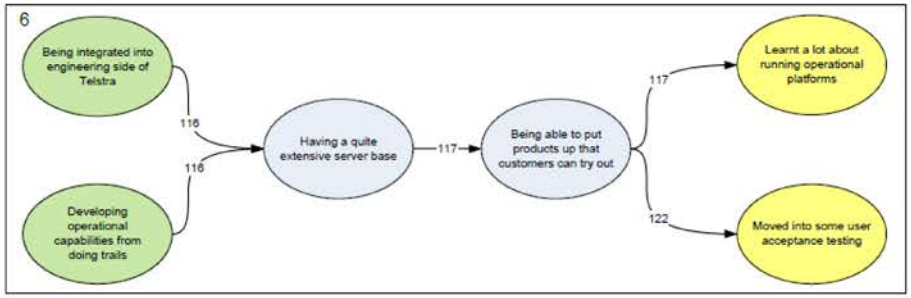

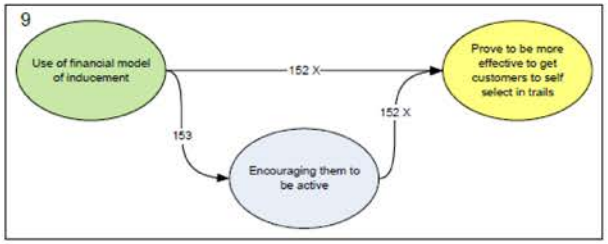

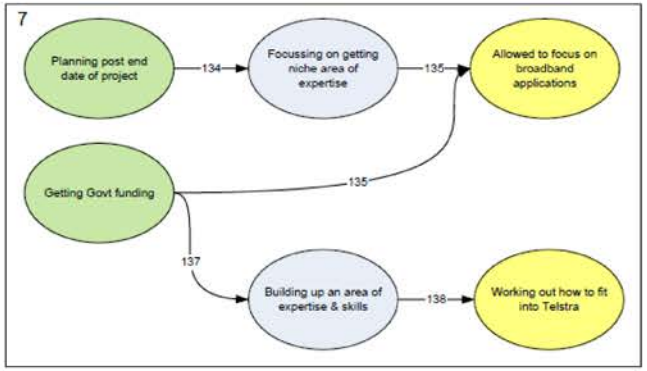

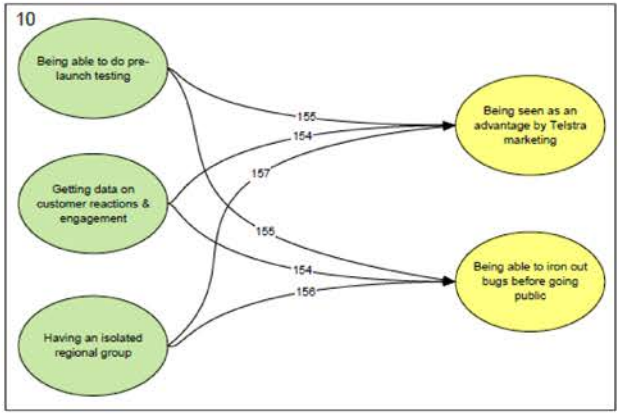

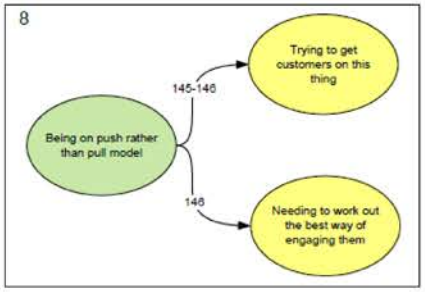

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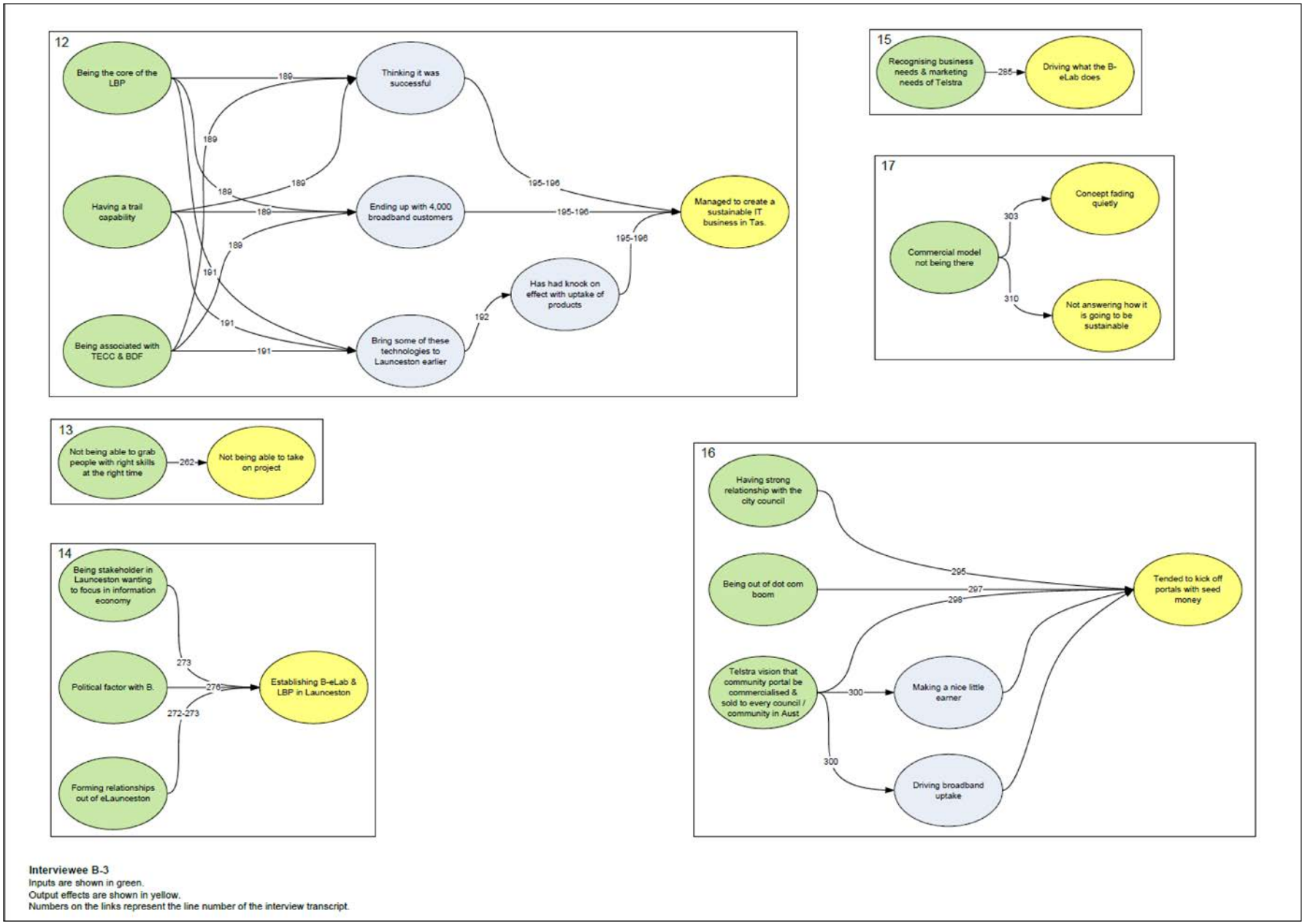

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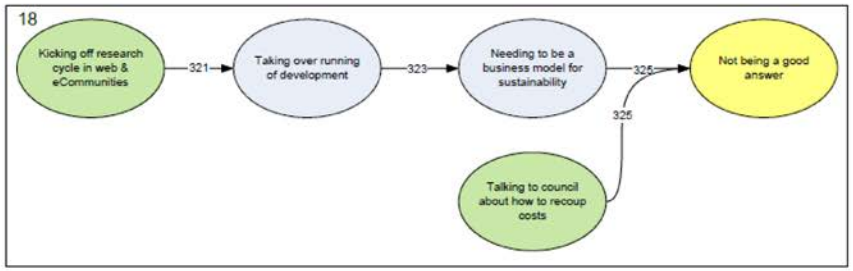

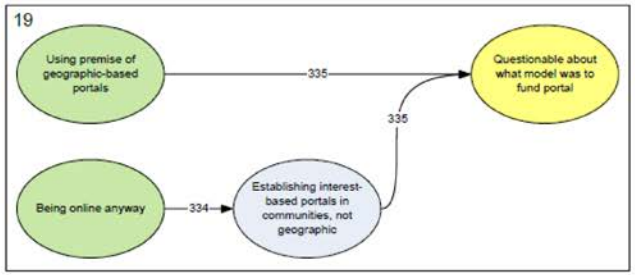

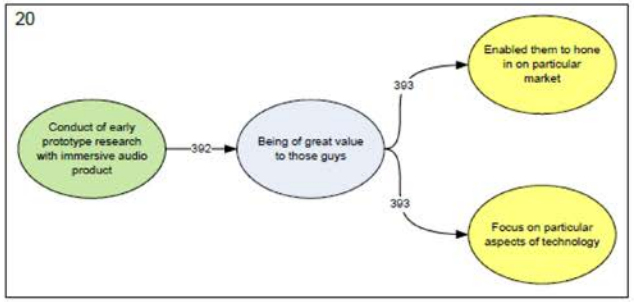

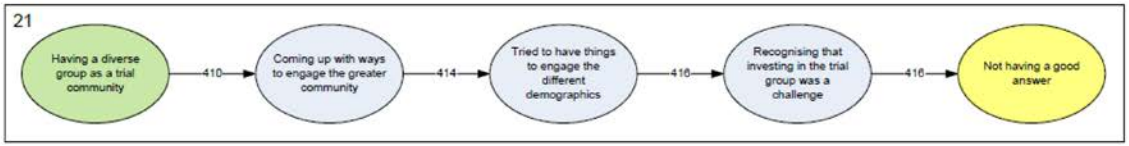

Interviewee B-4
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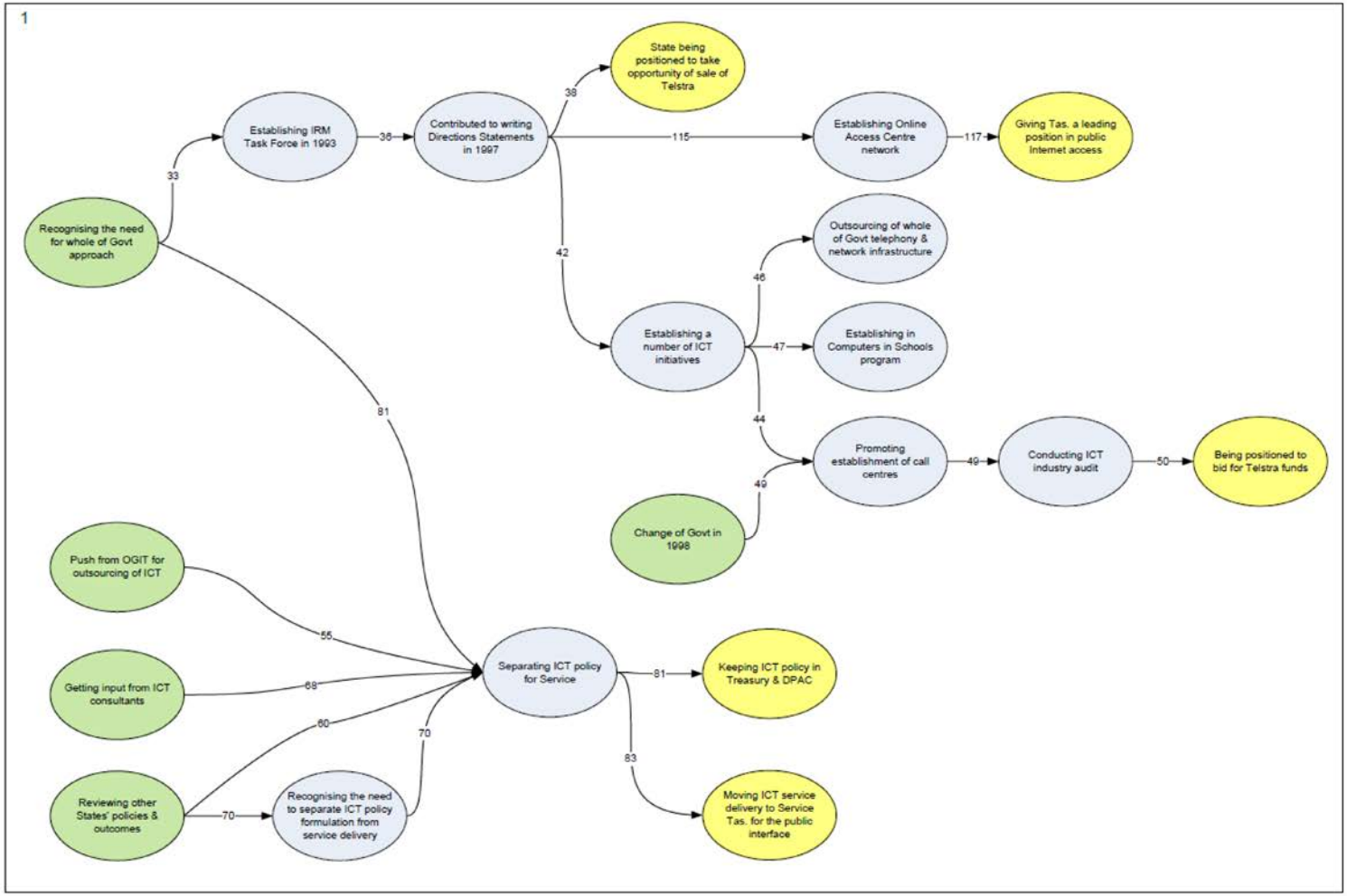

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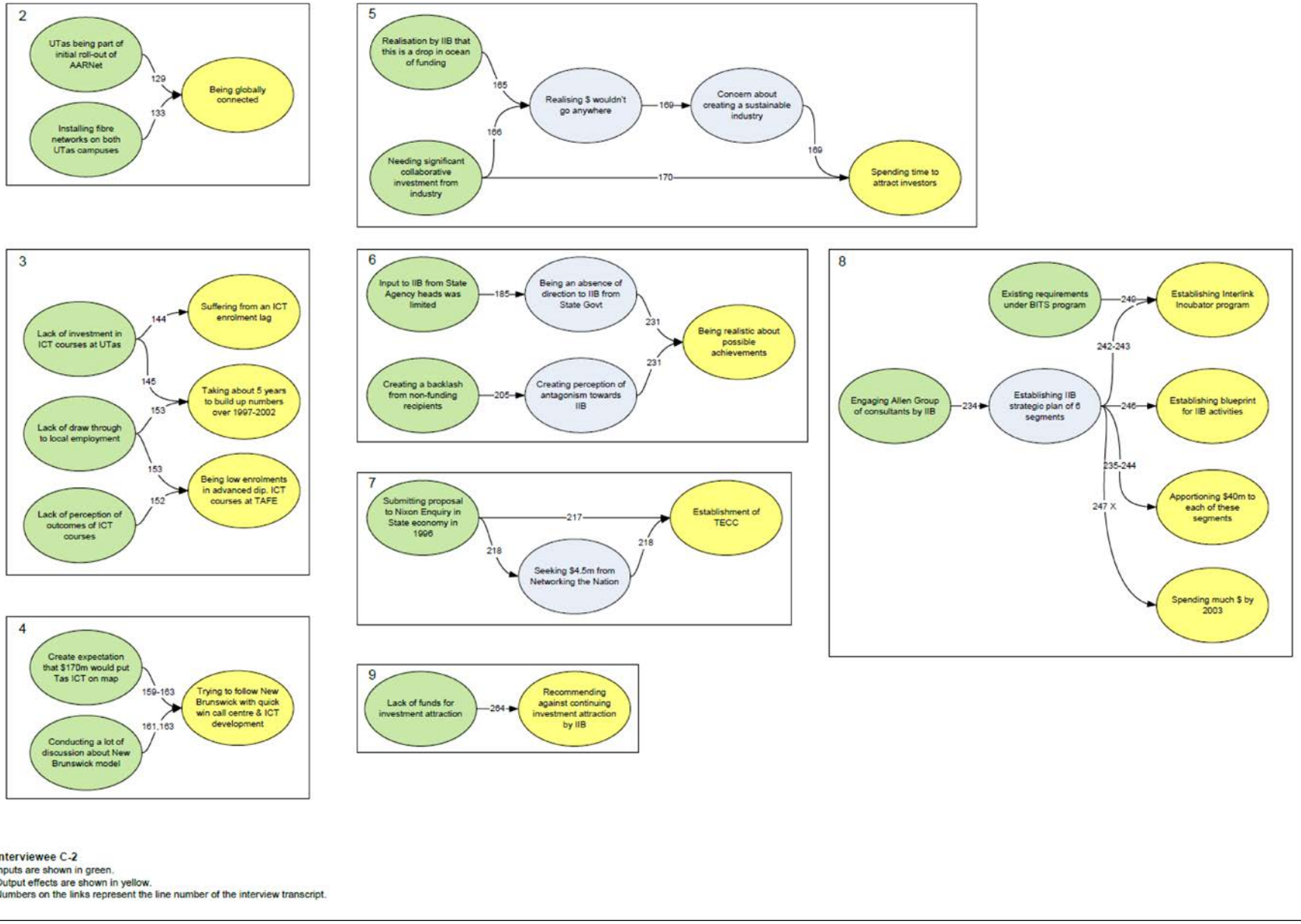

Interviewee C-2
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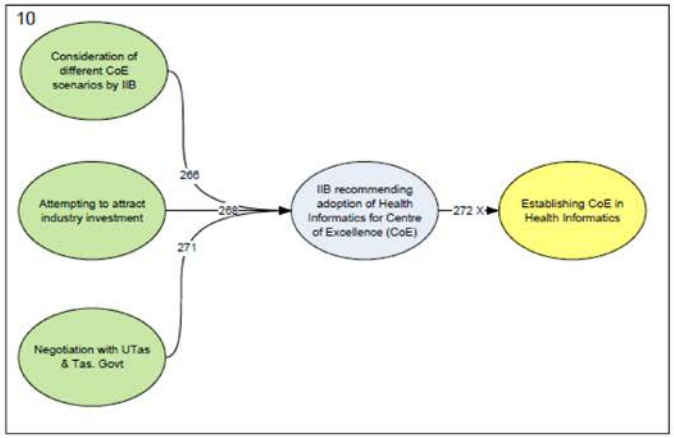
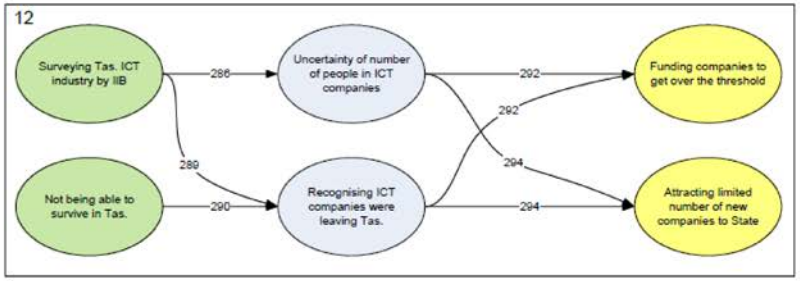
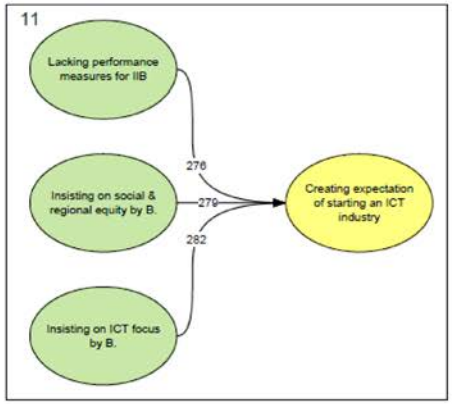
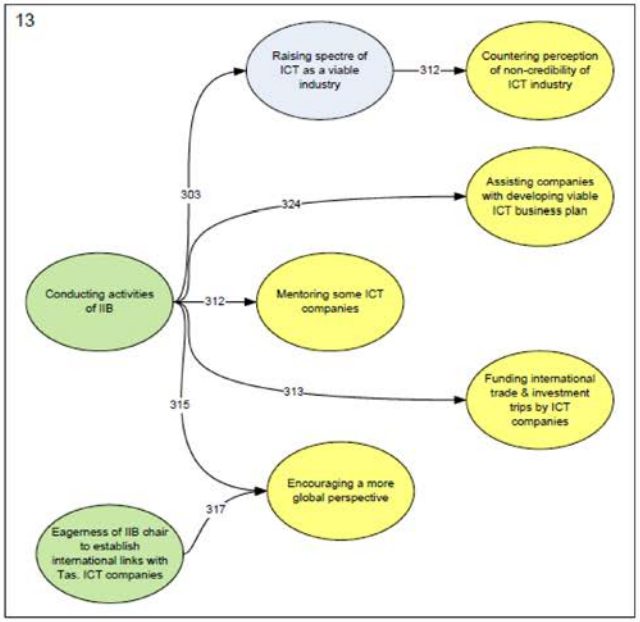
Numbers on the links represent the line number of the interview transcript.

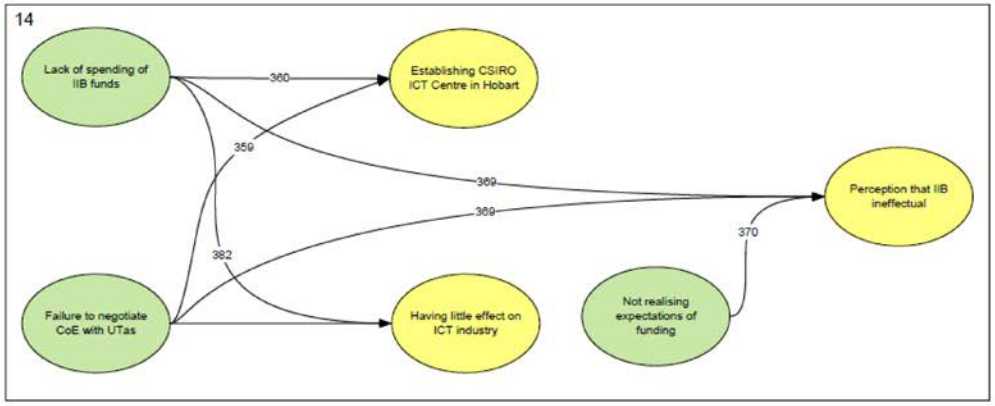


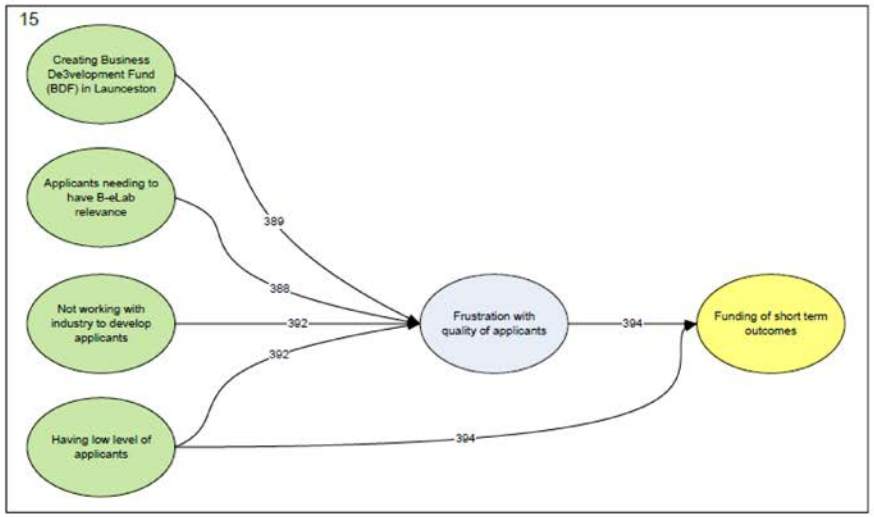


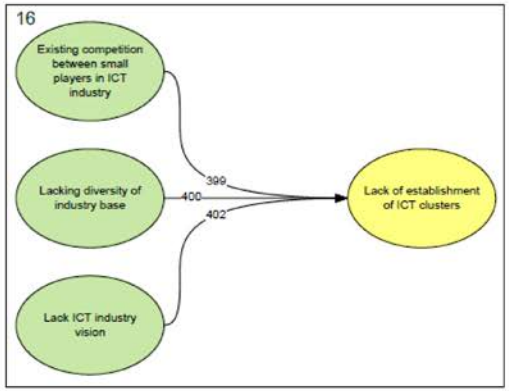




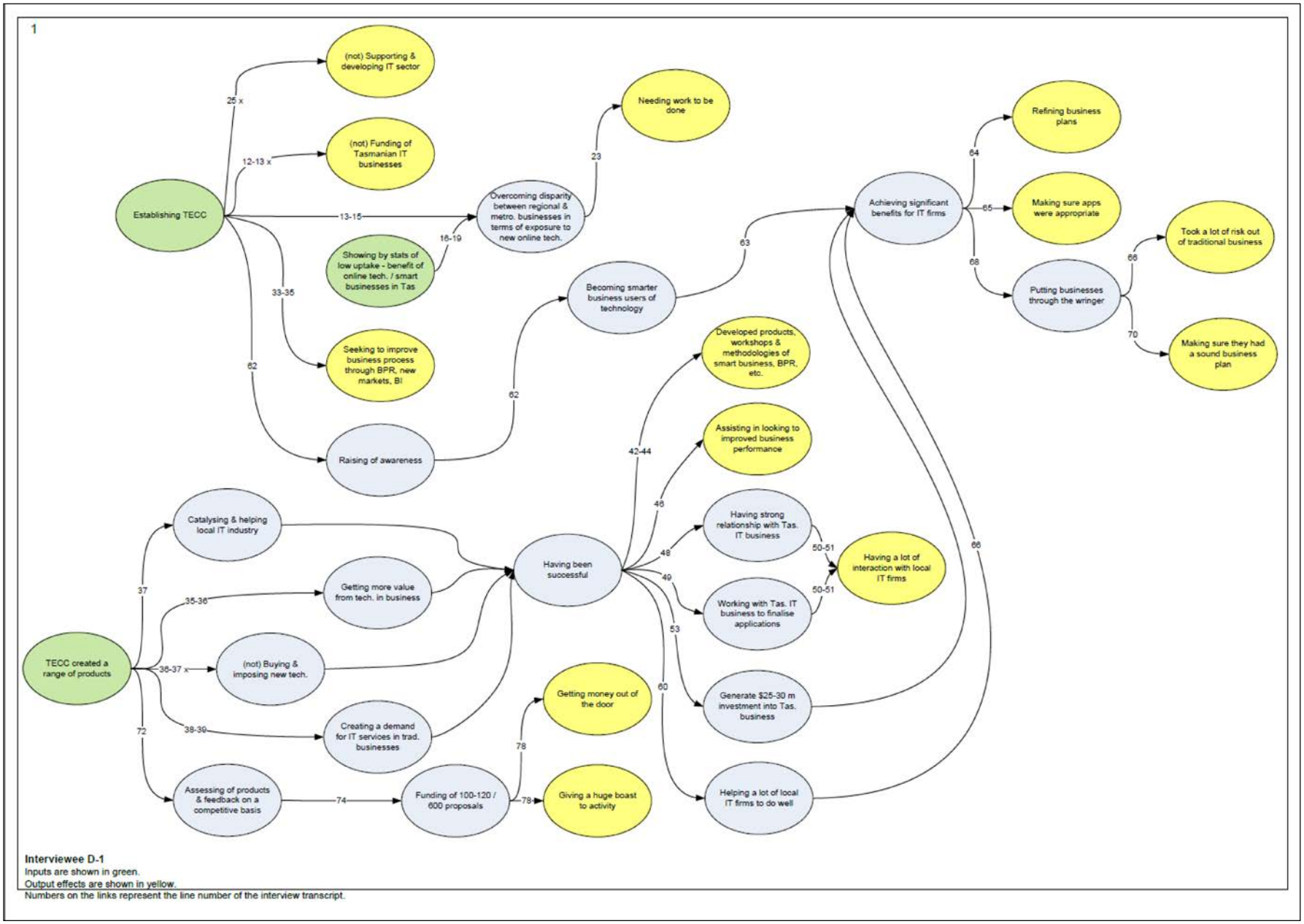
Interviewee C-3
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.







Interviewee C-4
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.


1
(not) Supporting & developing IT sector
(not) Funding of Tasmanian IT businesses
Establishing TECC
Showing by stats of low uptake - benefit of online tech. / smart businesses in Tas
Overcoming disparity between regional & metro. businesses in terms of exposure to new online tech.
Needing work to be done
Seeking to improve business process through BPR, new markets, BI
Raising of awareness
Becoming smarter business users of technology
Developed products, workshops & methodologies of smart business, BPR, etc.
Assisting in looking to improved business performance
Having been successful
Having strong relationship with Tas. IT business
Working with Tas. IT business to finalise applications
Having a lot of interaction with local IT firms
Generate $25-30 m investment into Tas. business
Helping a lot of local IT firms to do well
Achieving significant benefits for IT firms
Refining business plans
Making sure apps were appropriate
Putting businesses through the wringer
Took a lot of risk out of traditional business
Making sure they had a sound business plan
Catalysing & helping local IT industry
Getting more value from tech. in business
TECC created a range of products
(not) Buying & imposing new tech.
Creating a demand for IT services in trad. businesses
Assessing of products & feedback on a competitive basis
Funding of 100-120 / 600 proposals
Getting money out of the door
Giving a huge boast to activity
25 x
12-13 x
13-15
16-19
23
33-35
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42-44
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50-51
50-51
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35-36
38-37 x
38-39
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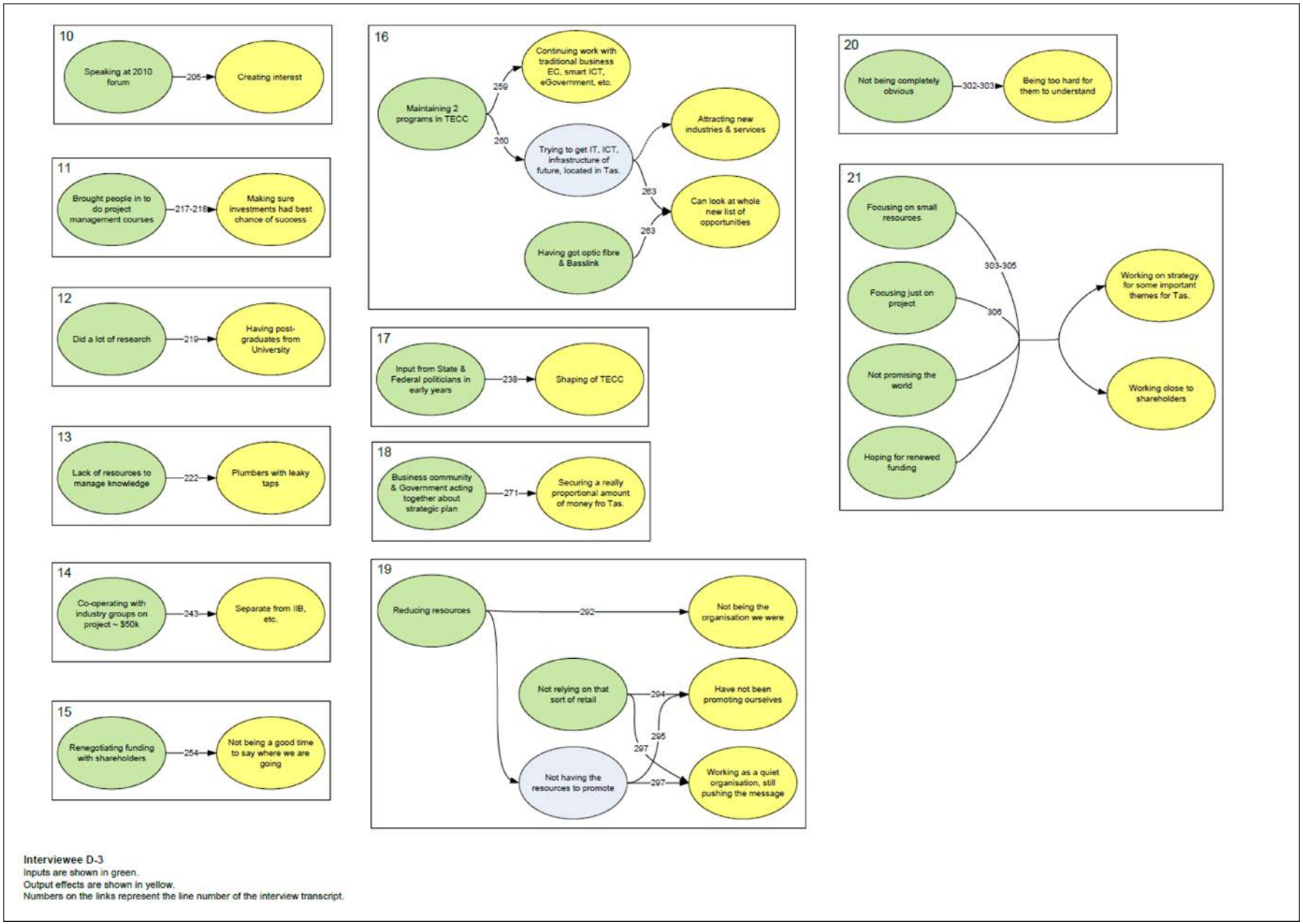
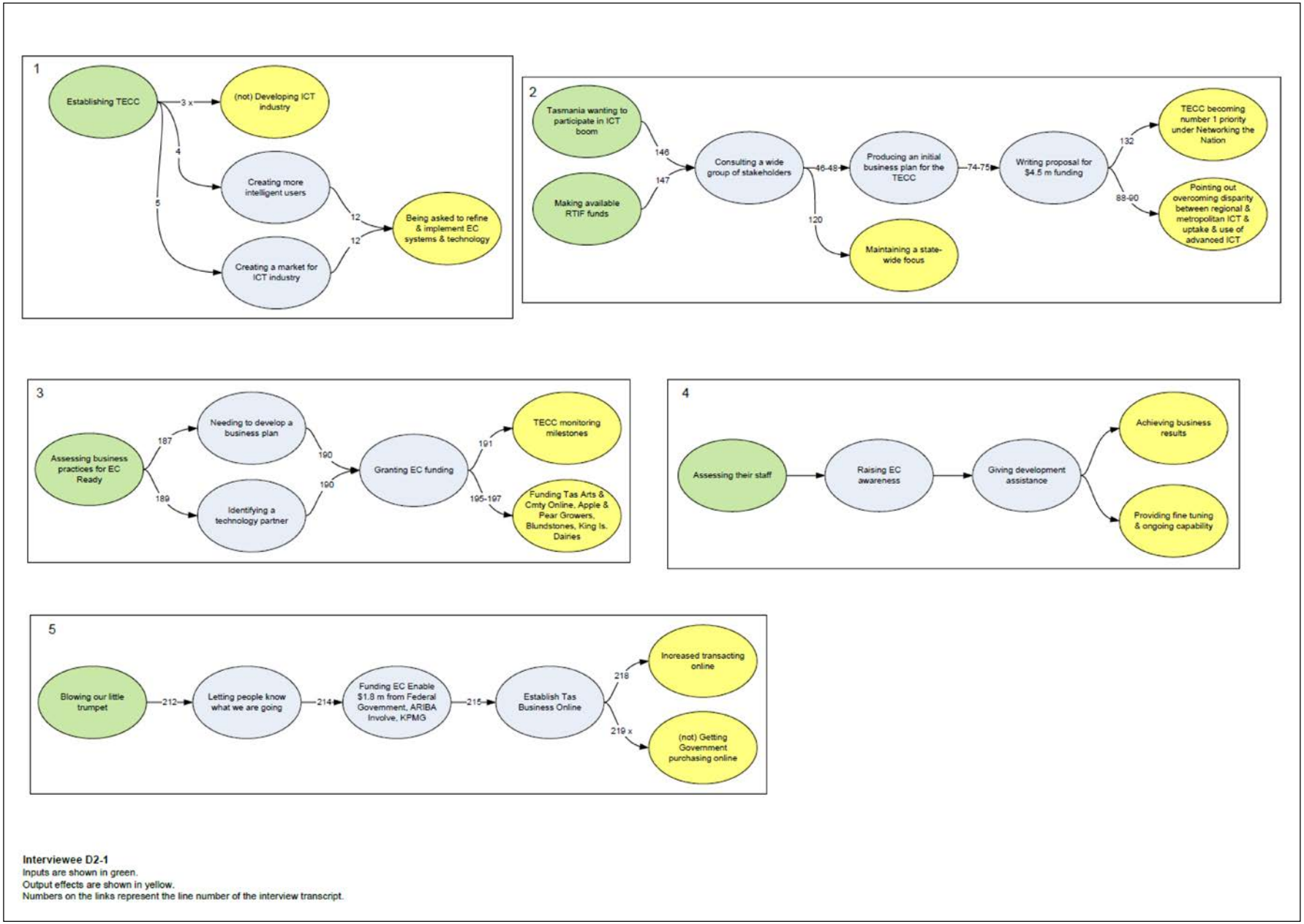
78
Interviewee D-1
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.

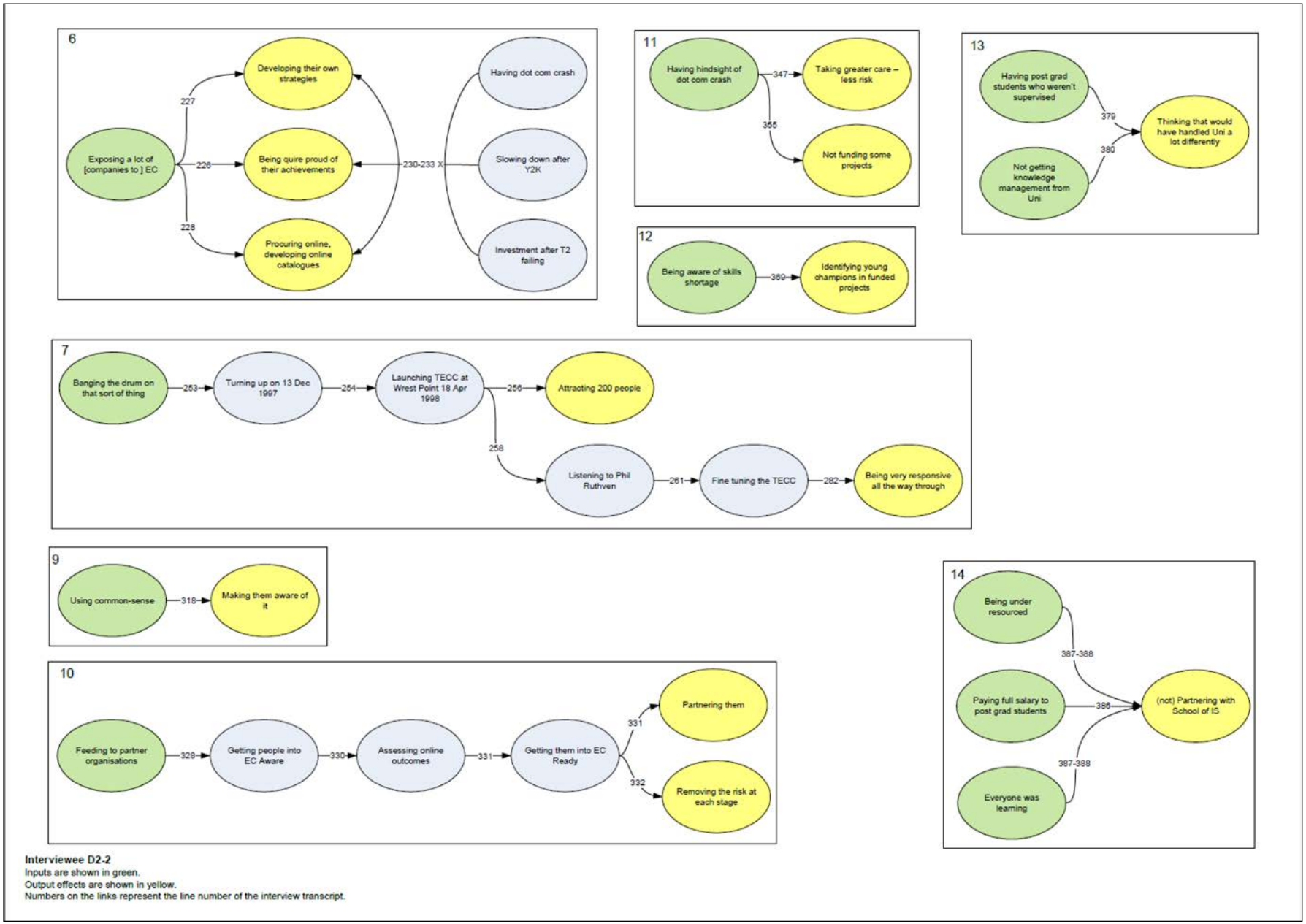
Interviewee D-2
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.



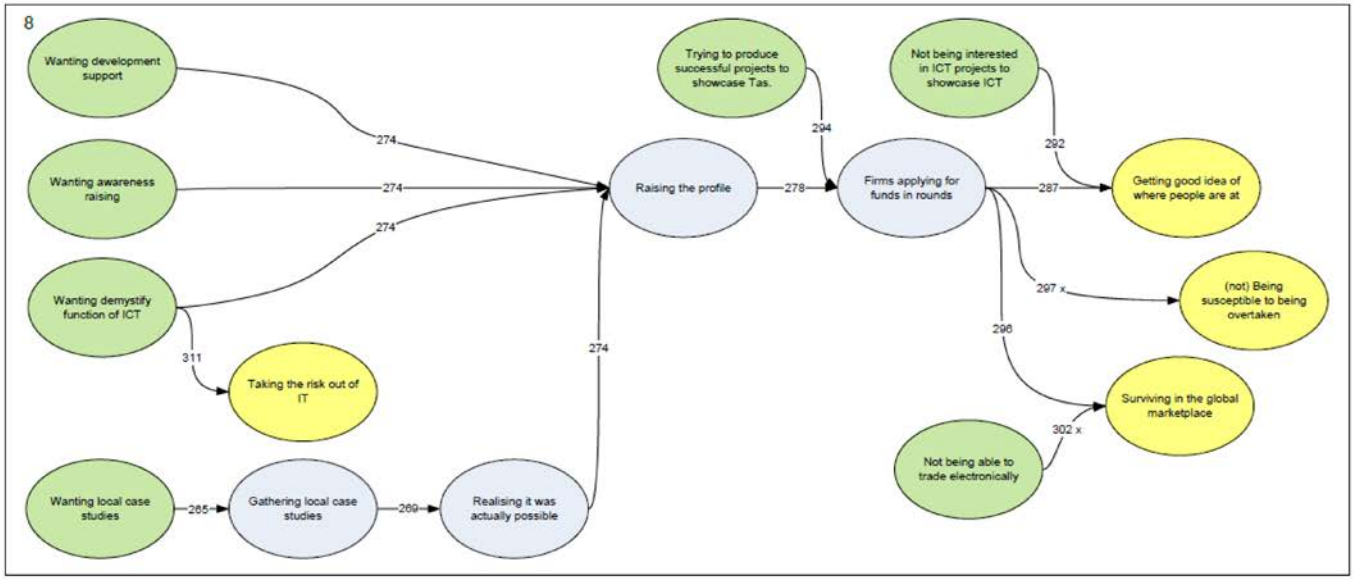
Interviewee D-3
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.

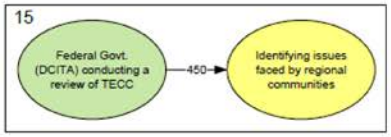


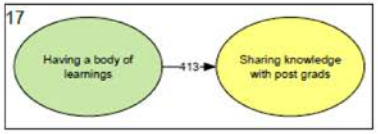
Interviewee D2-1
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.

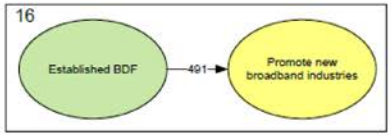


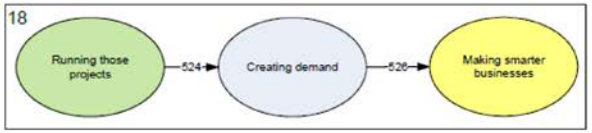
Interviewee D2-2
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.



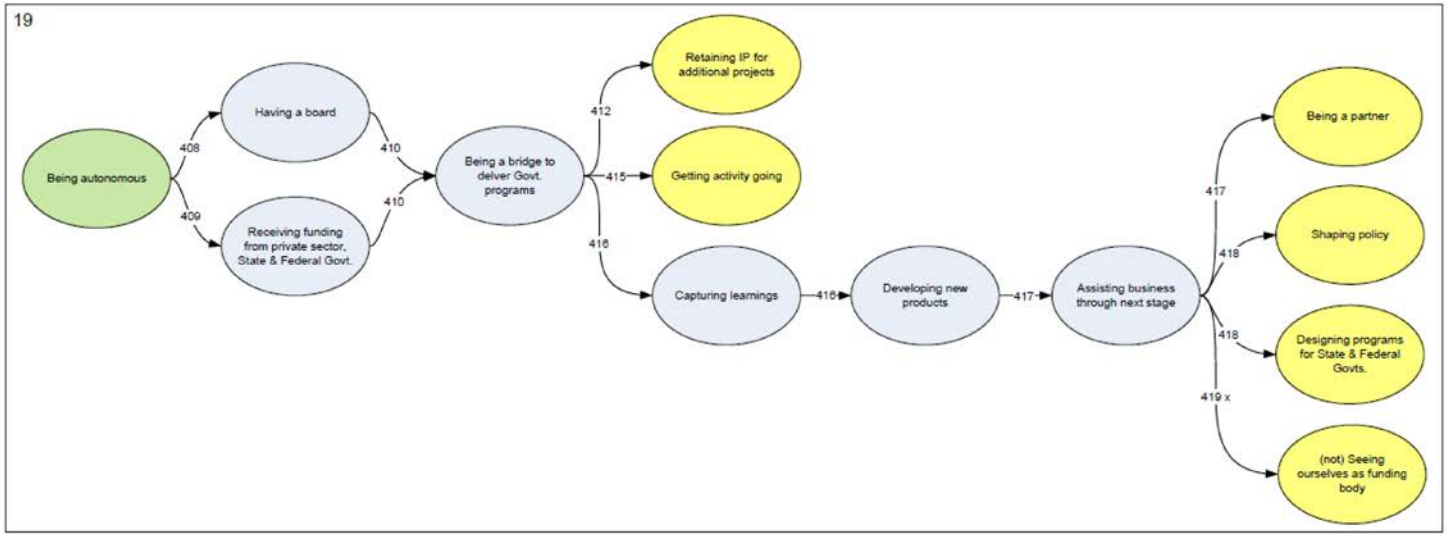


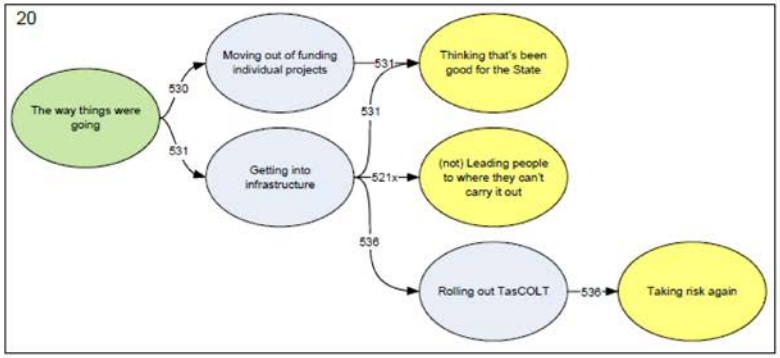




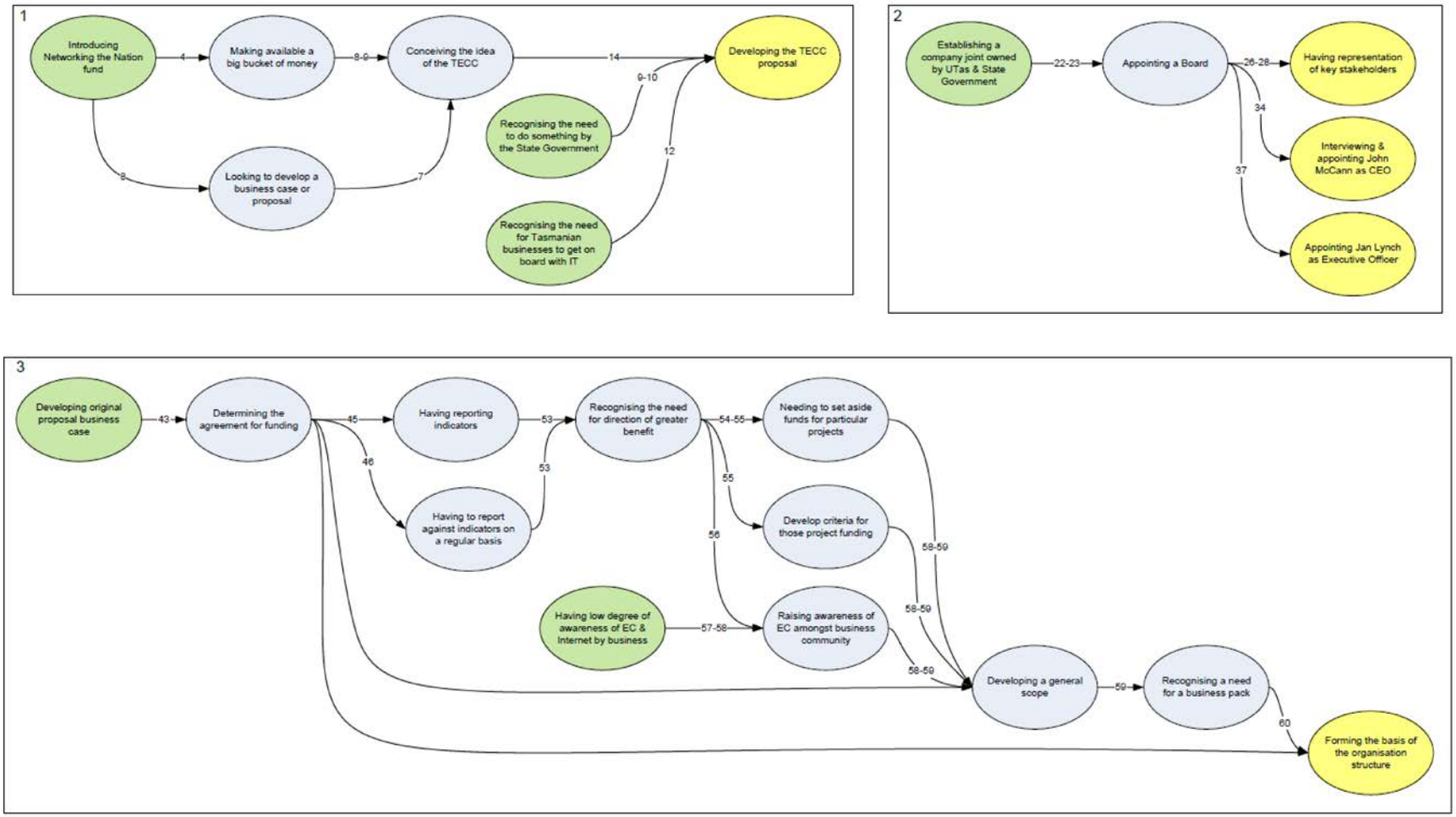


Interviewee D2-3
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.

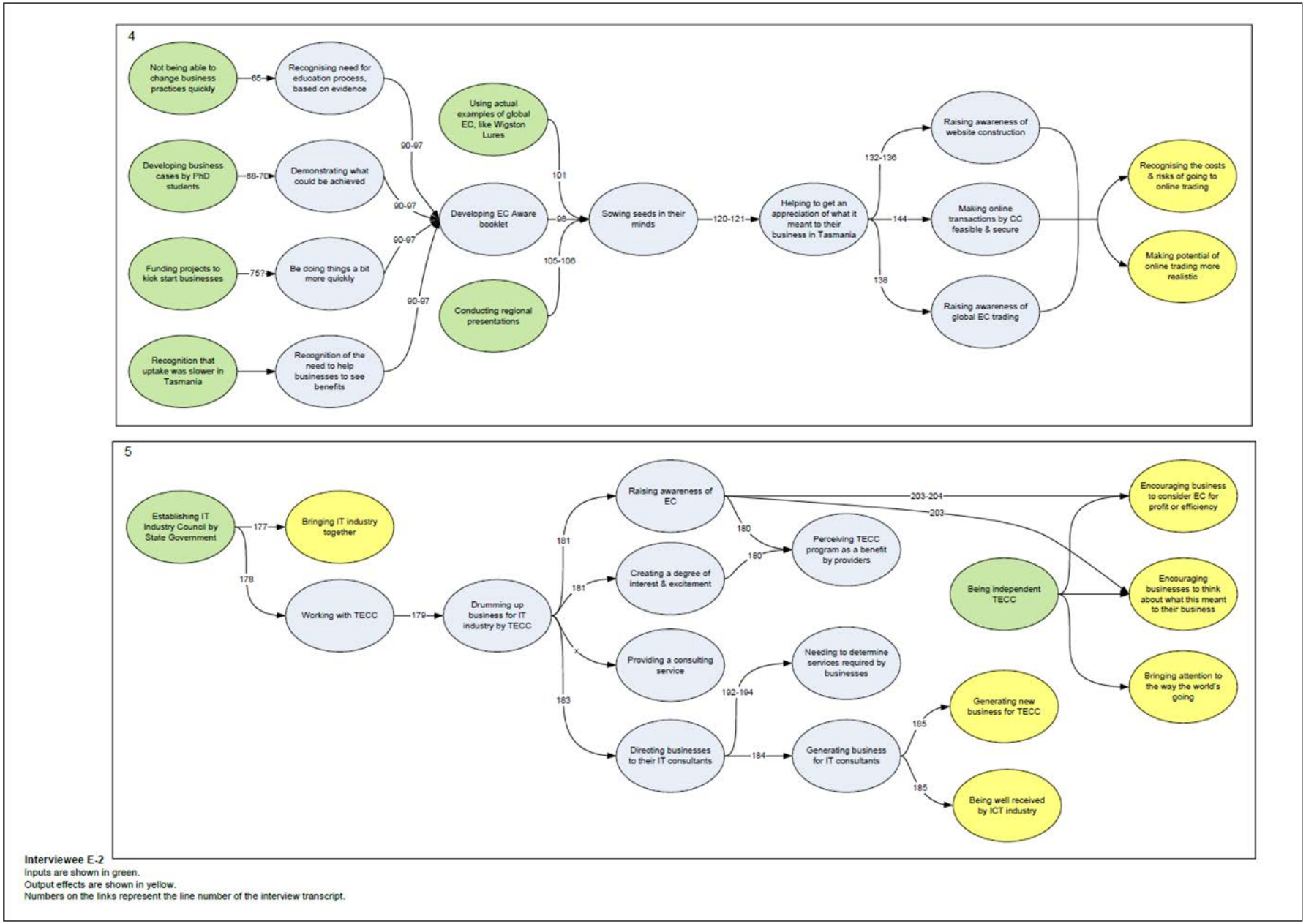




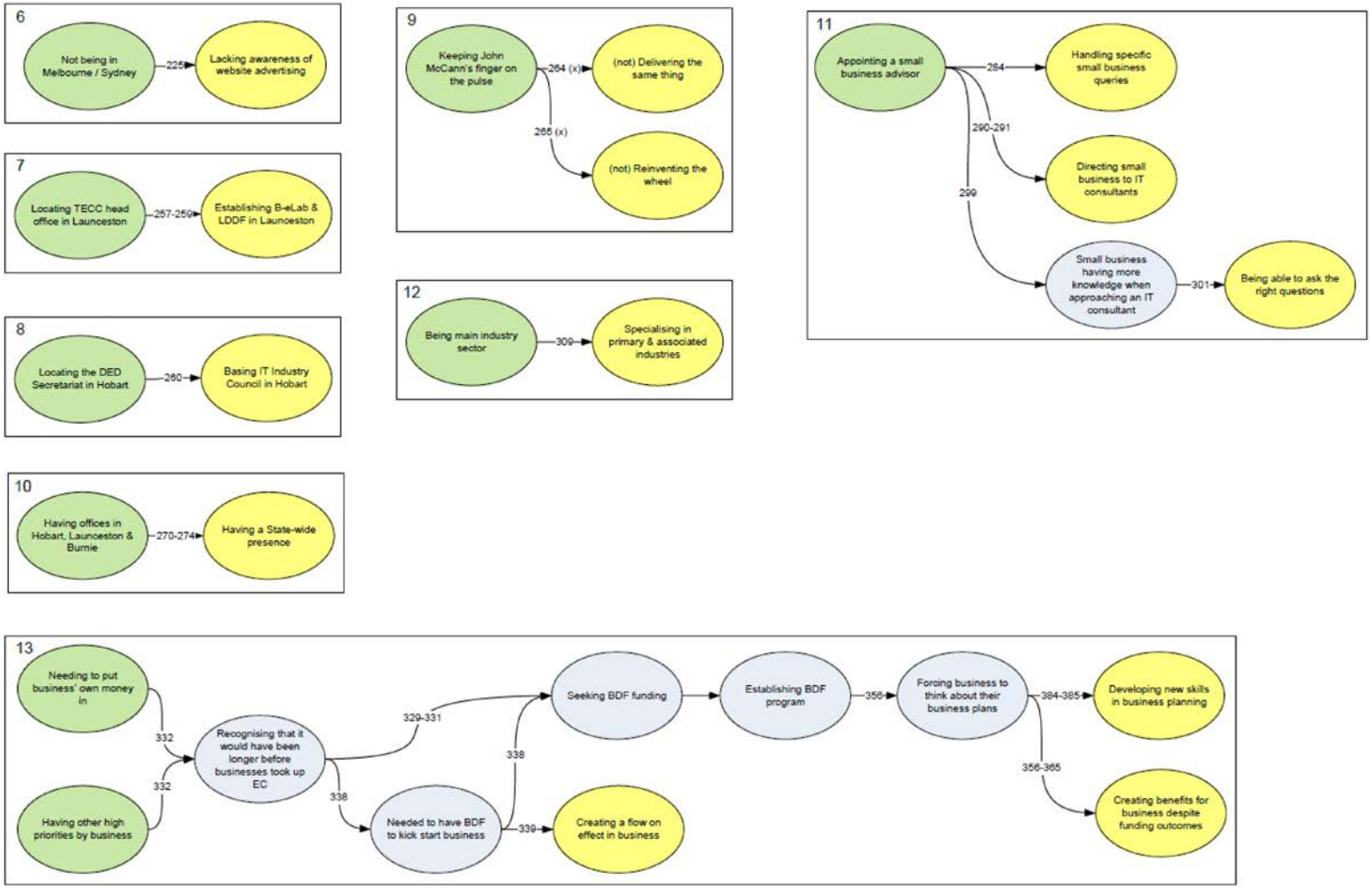
Interviewee D2-4
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.



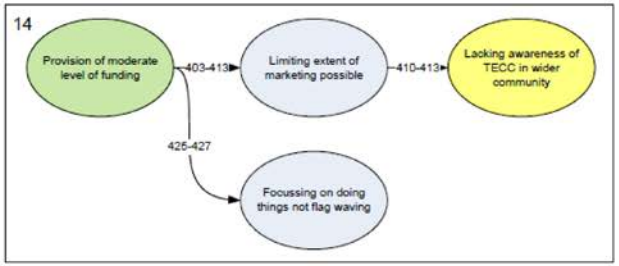
Interviewee E-1
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.

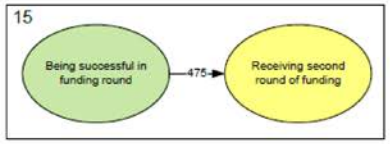


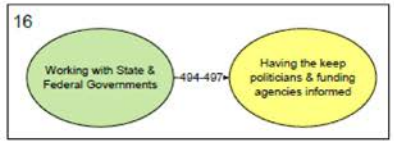
Interviewee E-2
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.

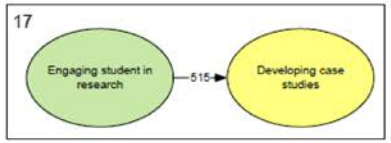


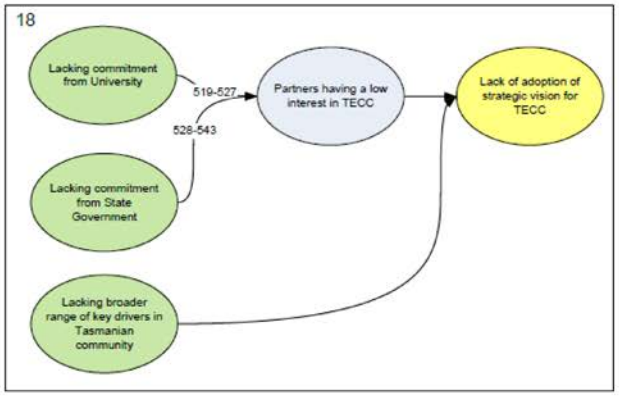
Interviewee E-3
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.

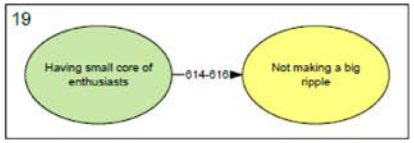


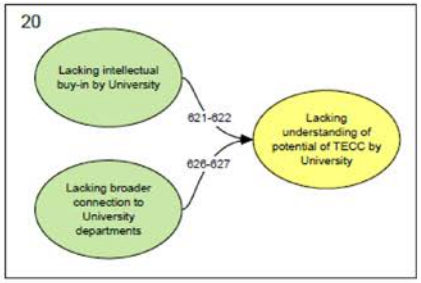


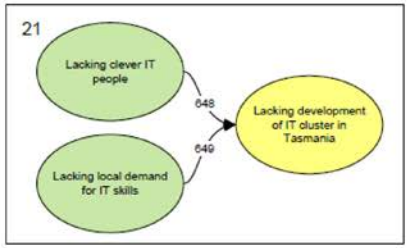




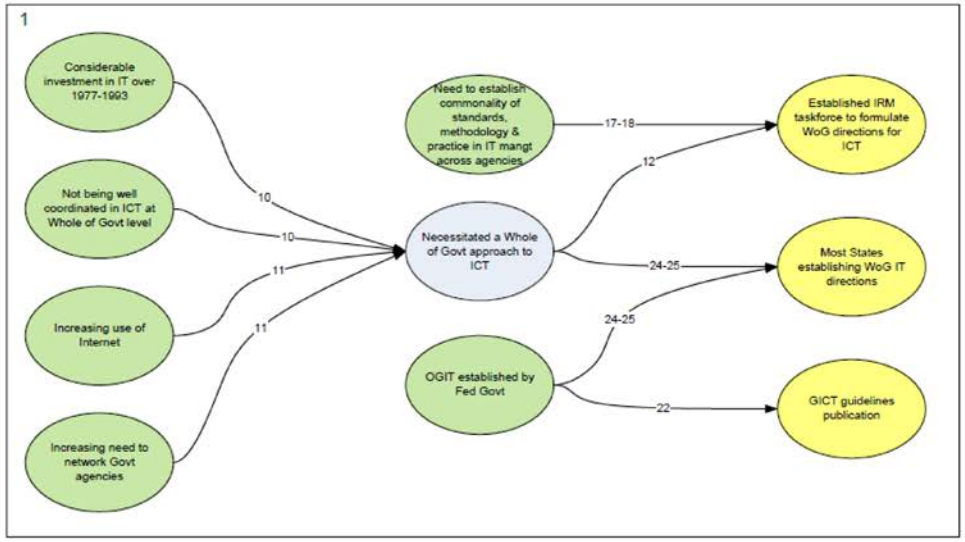


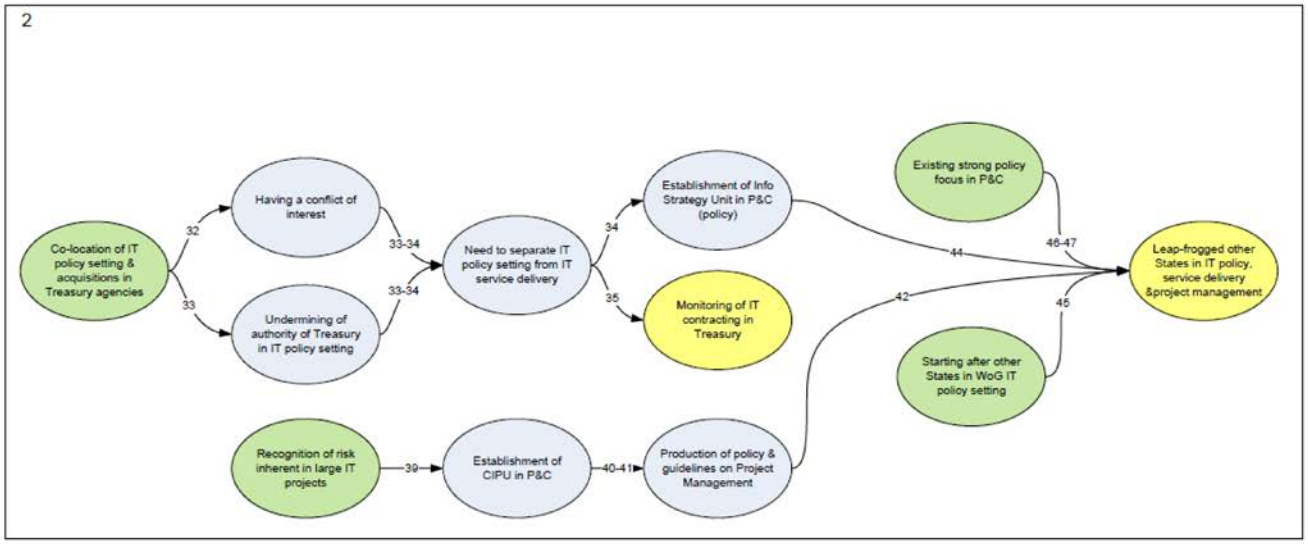




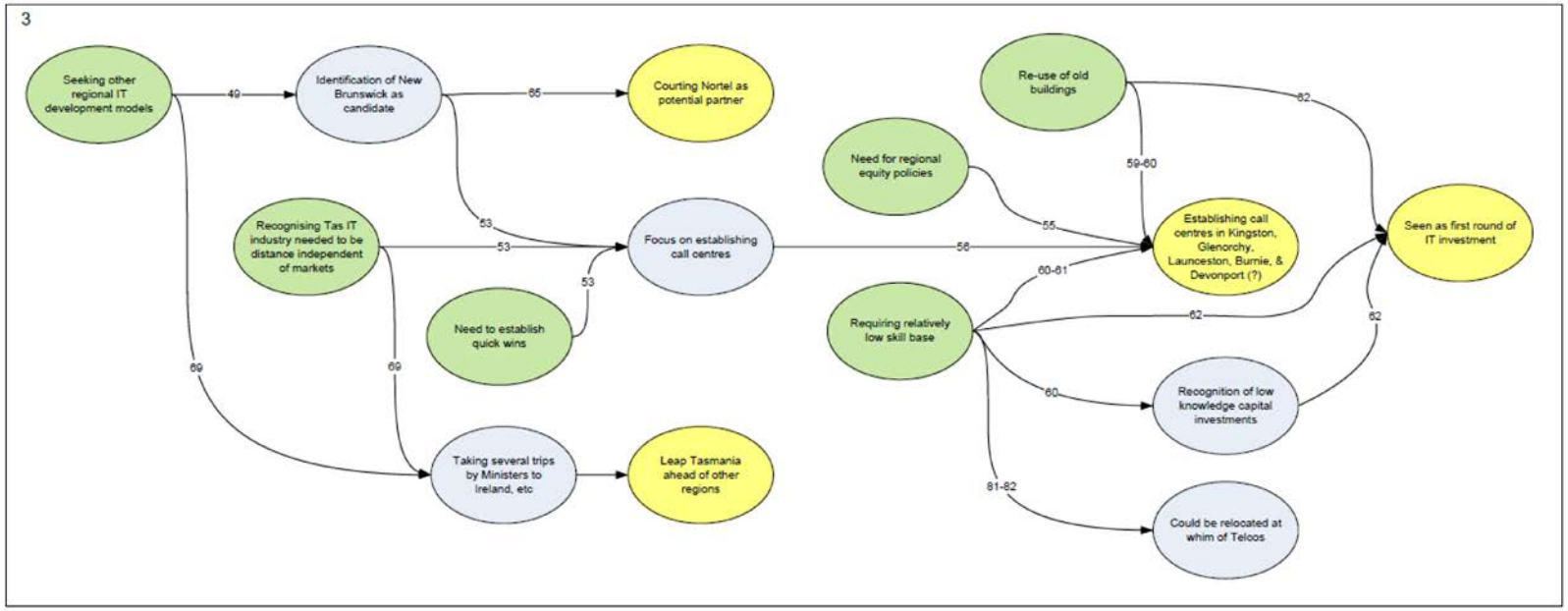


Interviewee E-4
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.

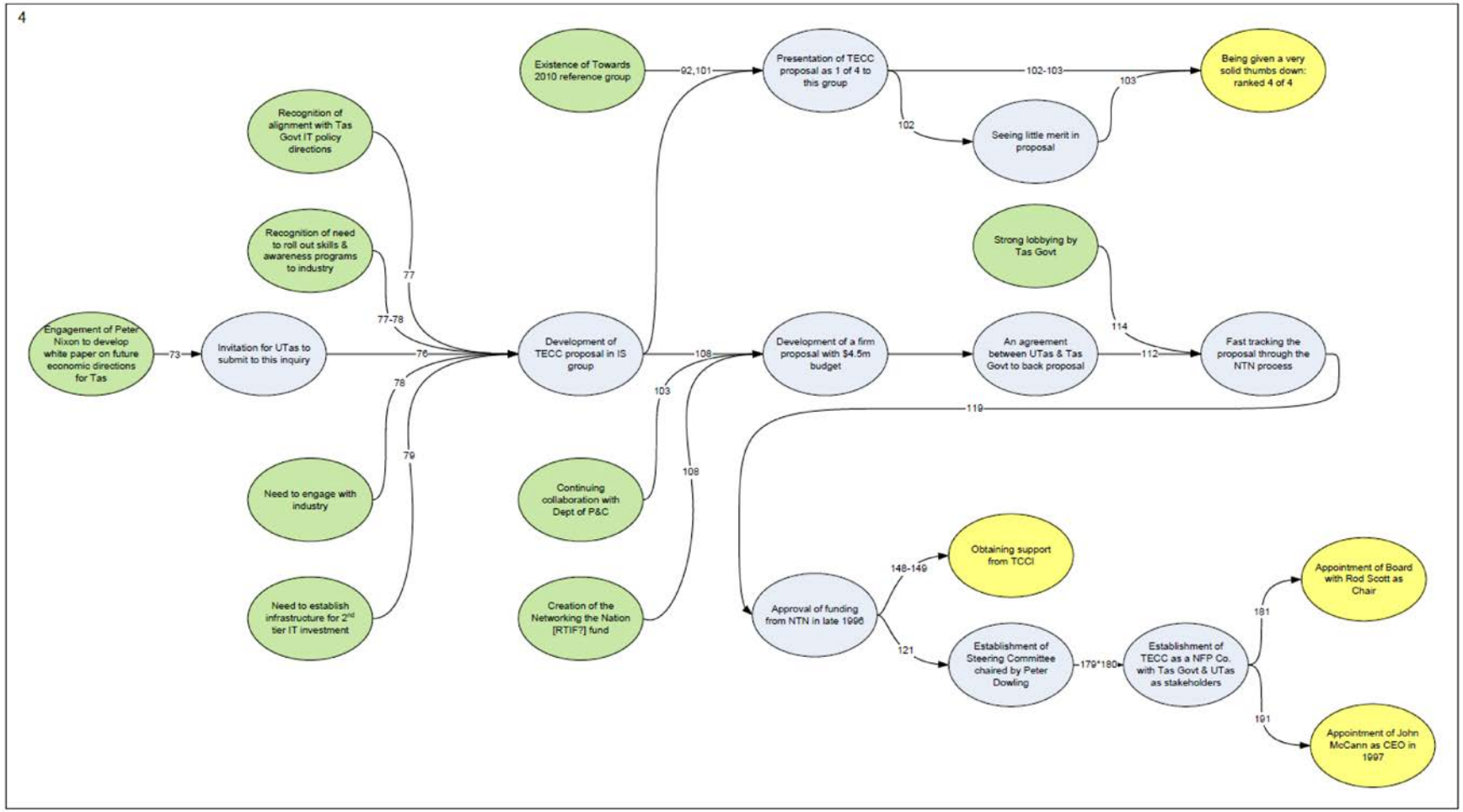




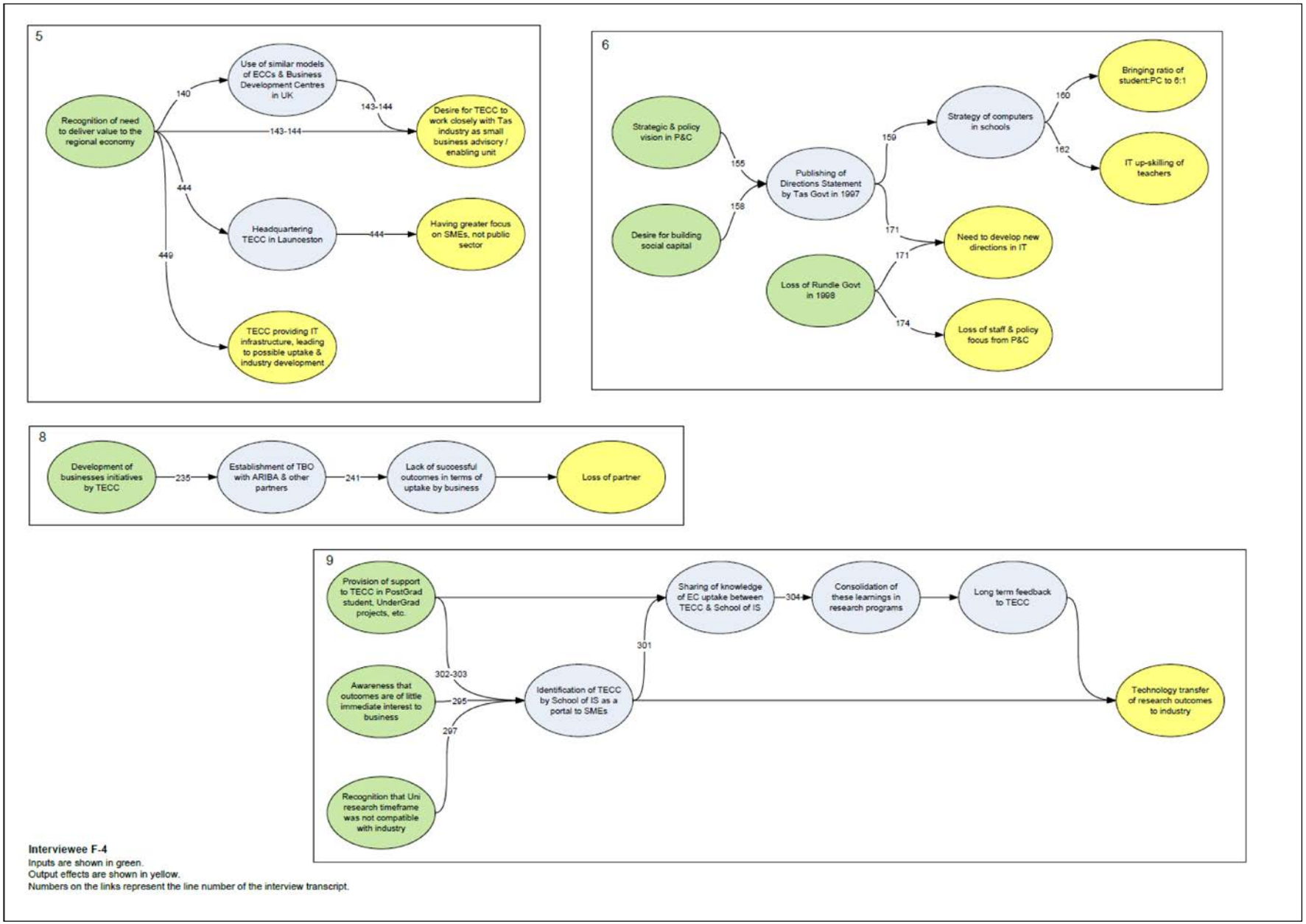
Interviewee F-1
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.



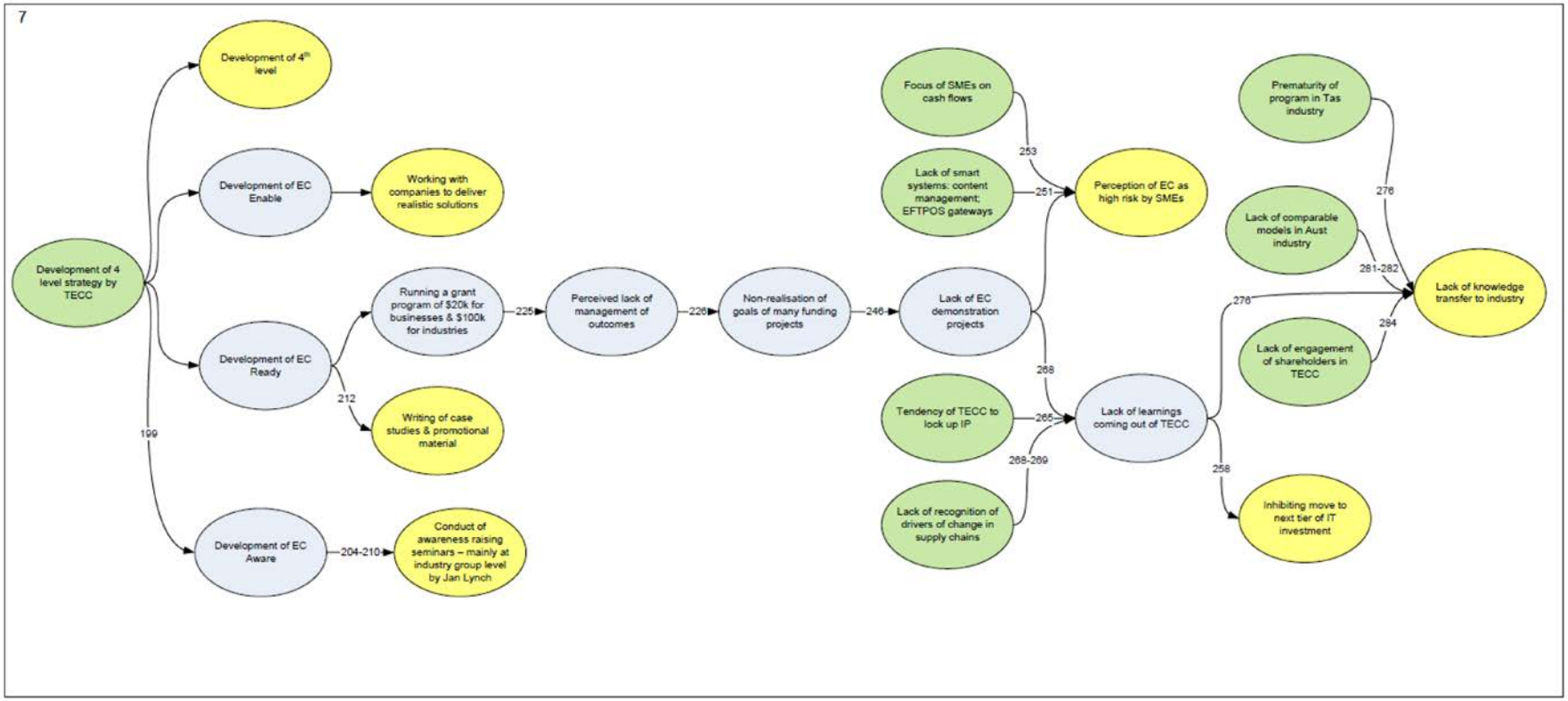
Interviewee F-2
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.



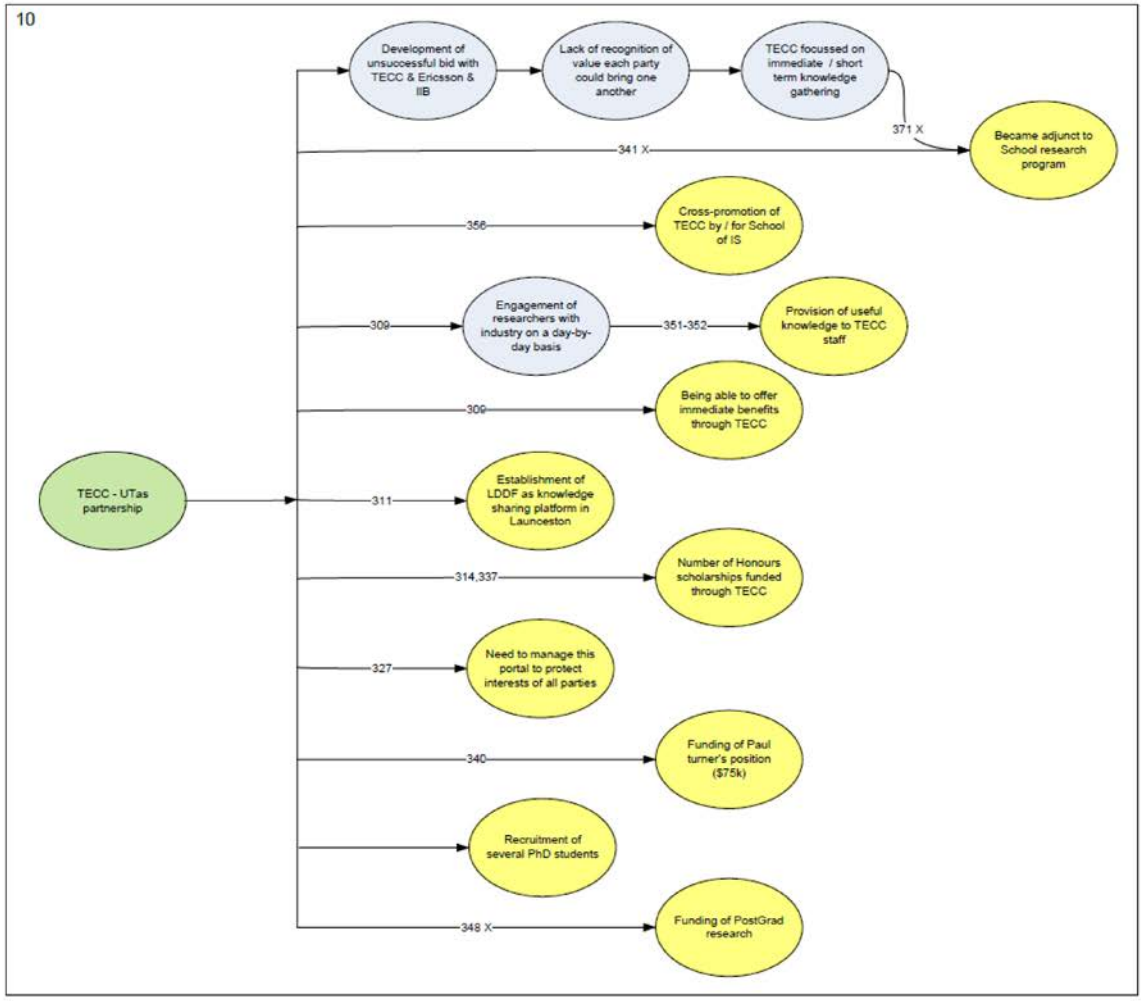
Interviewee F-3
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.

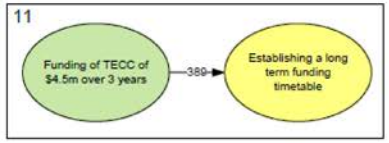


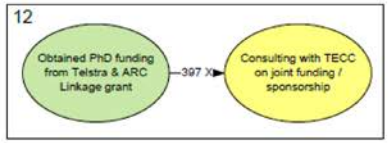
Interviewee F-4
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.

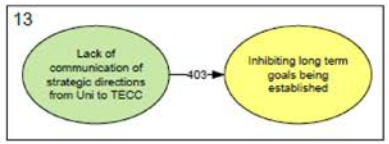


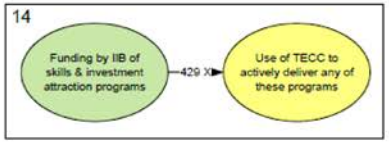
Interviewee F-5
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.



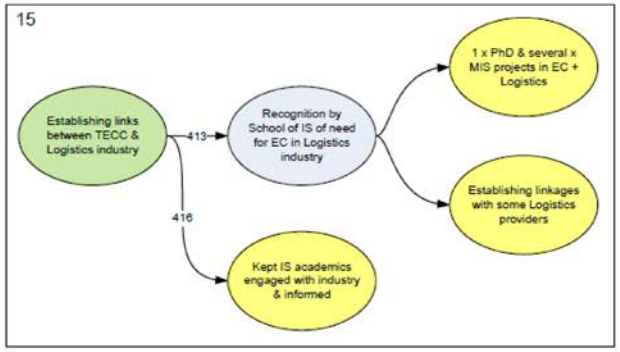


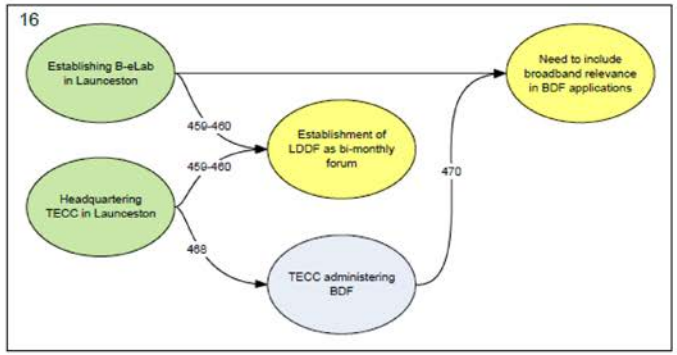


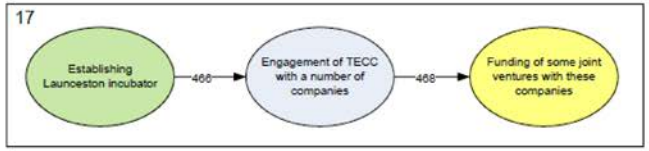


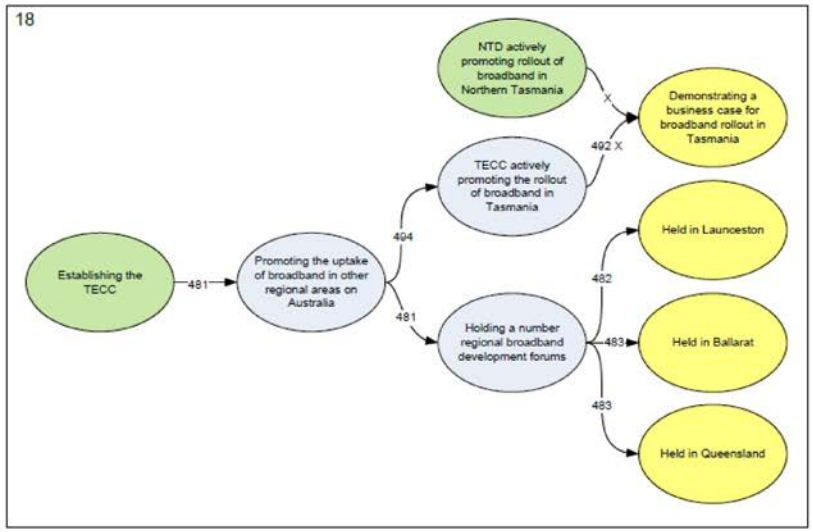


Interviewee F-6
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.

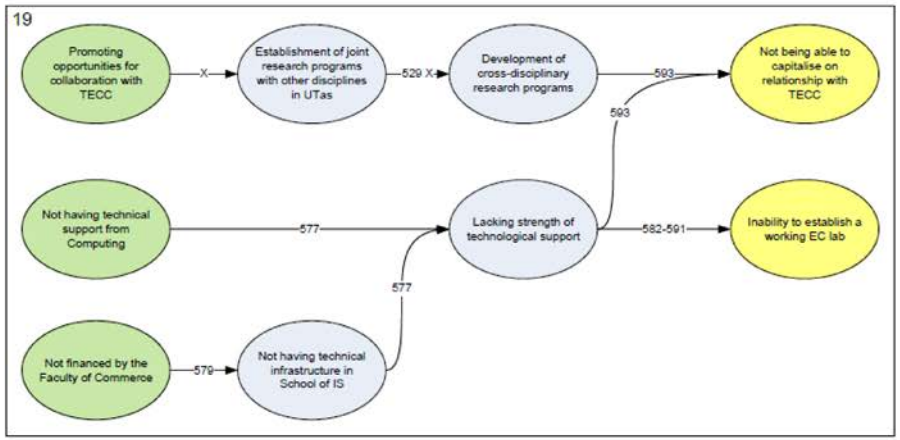


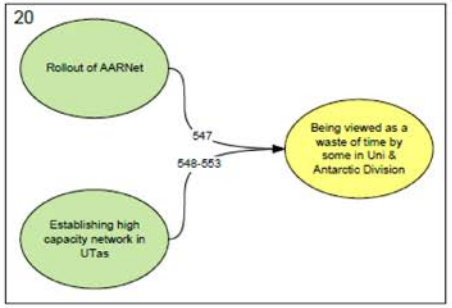


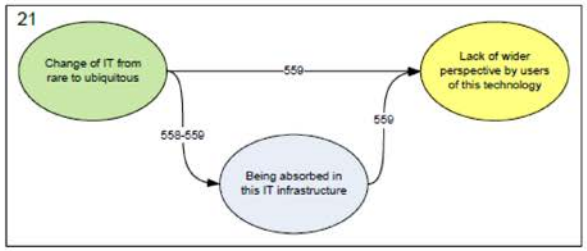


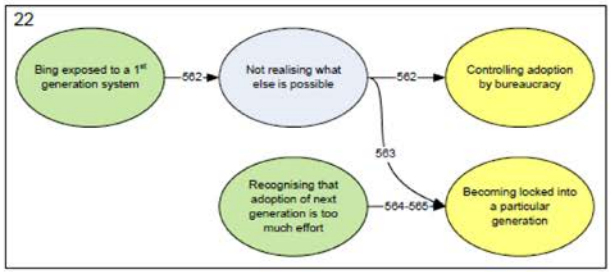


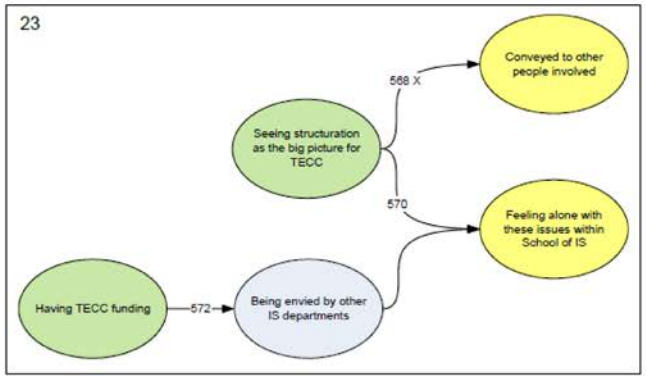
Interviewee F-7
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.

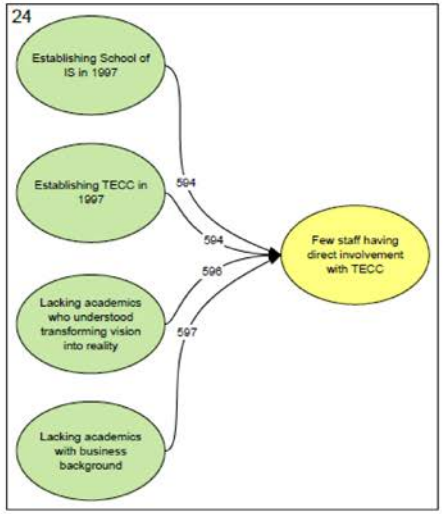


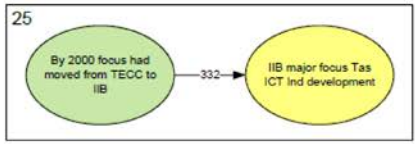




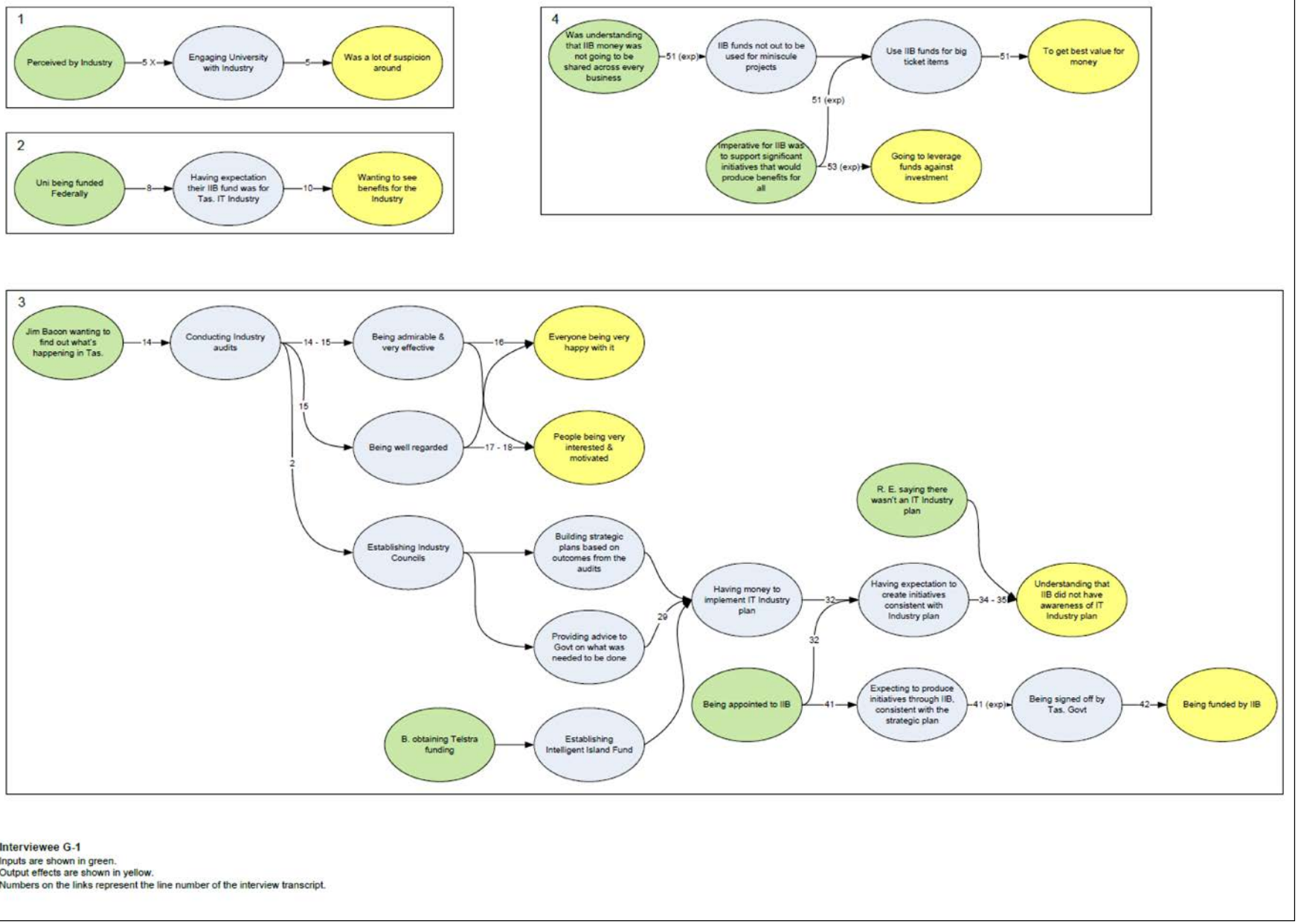








Interviewee F-8
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.



Interviewee G-1
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Output effects are shown in yellow.
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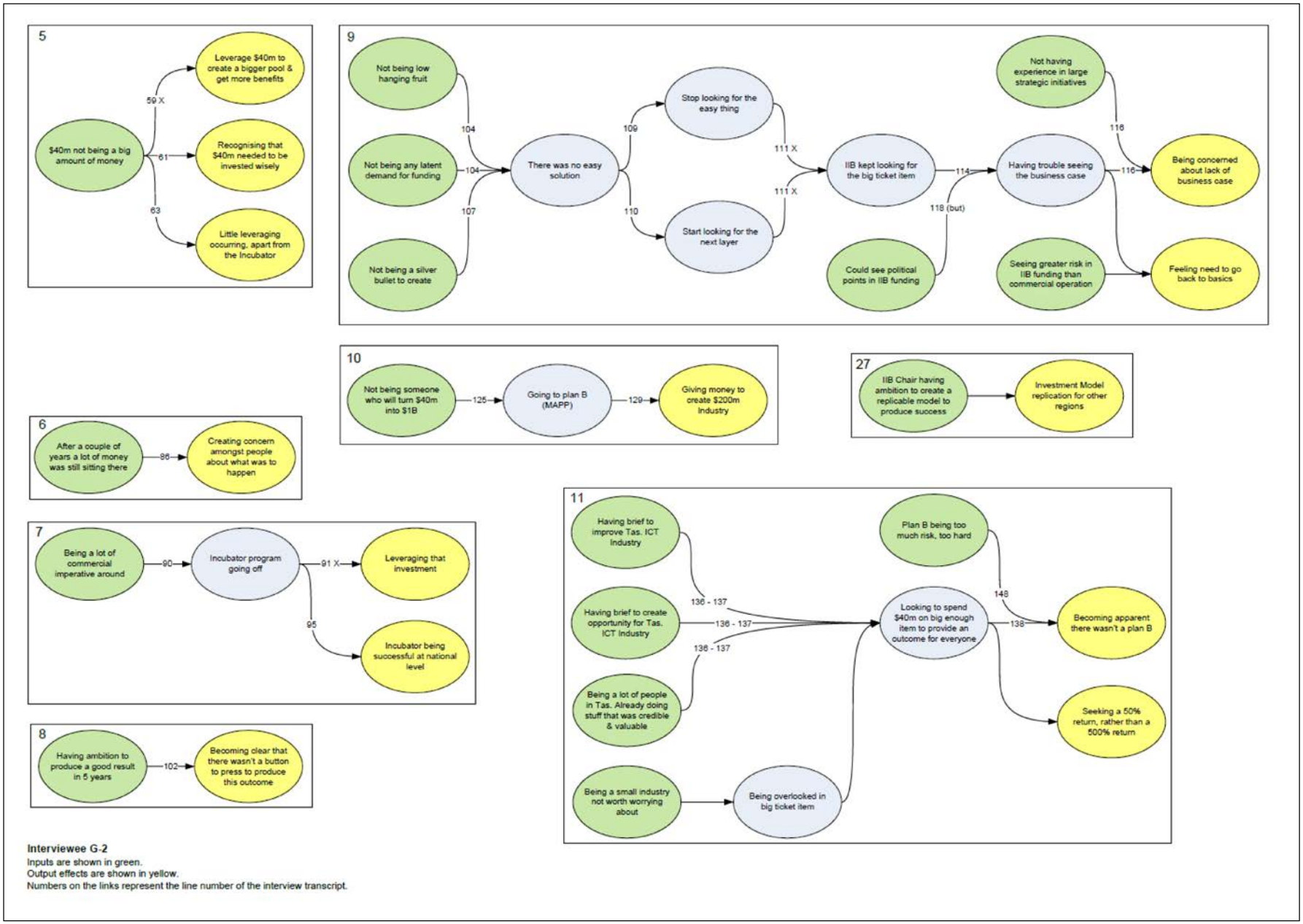

Interviewee G-2
Inputs are shown in green.
Output effects are shown in yellow.
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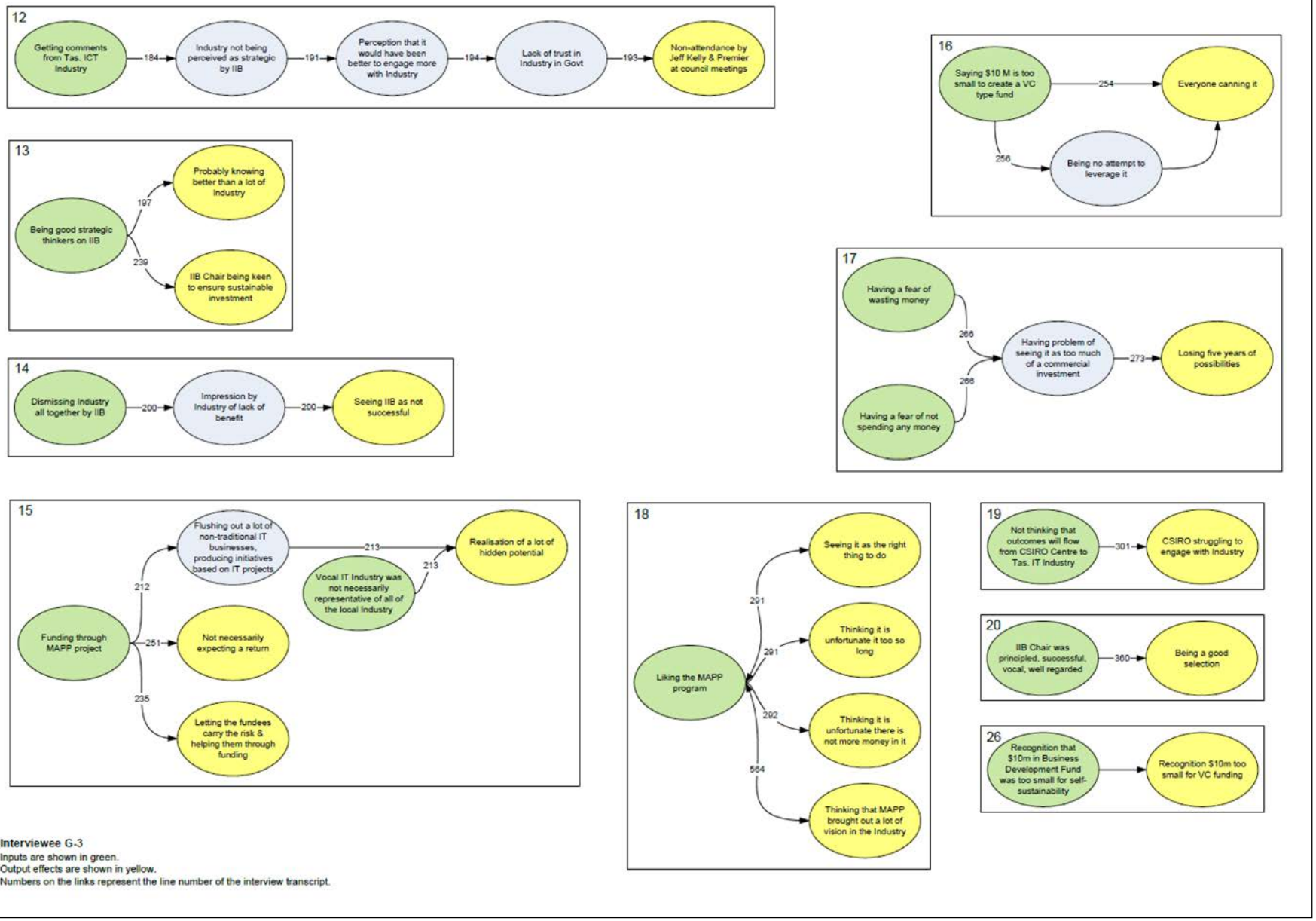

Interviewee G-3
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Output effects are shown in yellow.
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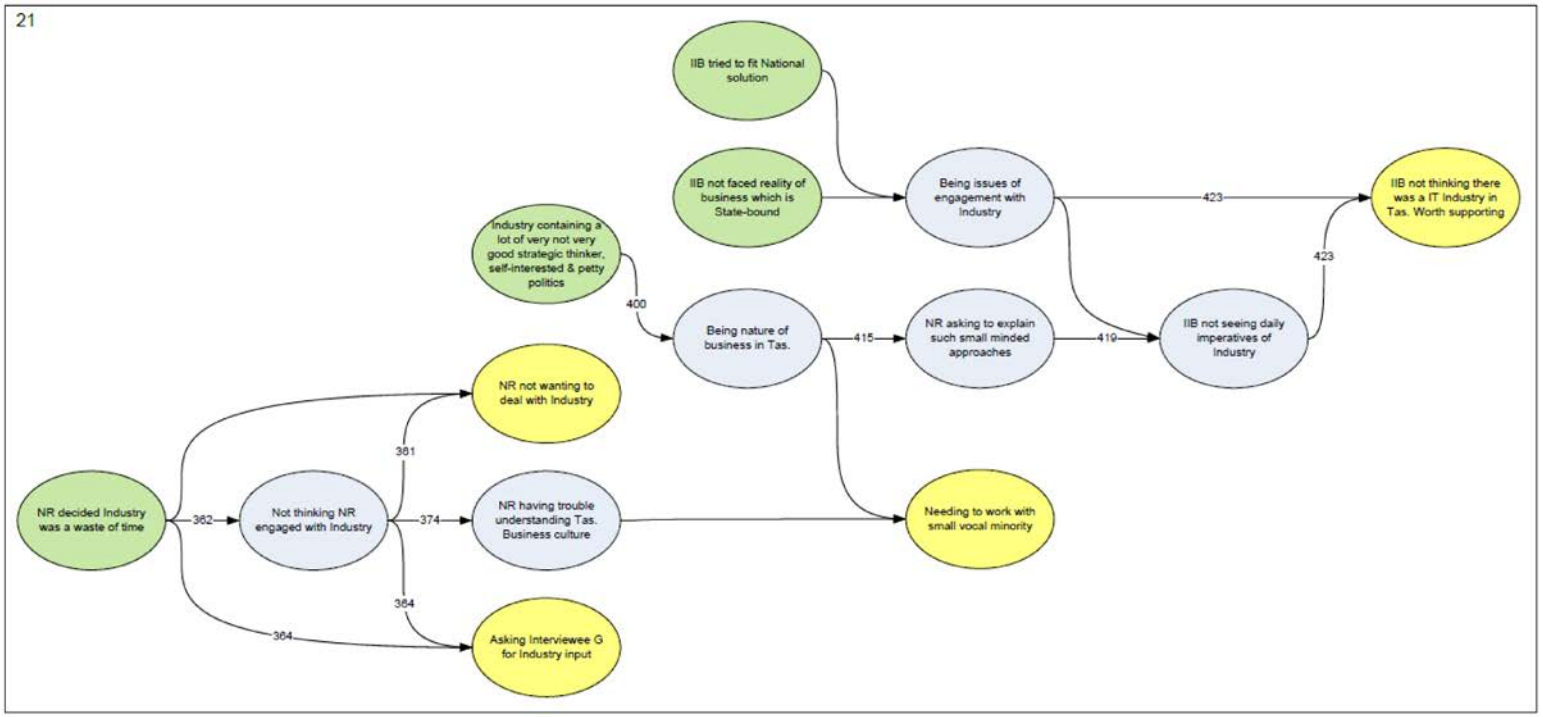

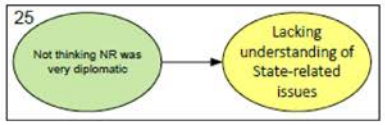

Interviewee G-4
Inputs are shown in green.
Output effects are shown in yellow.
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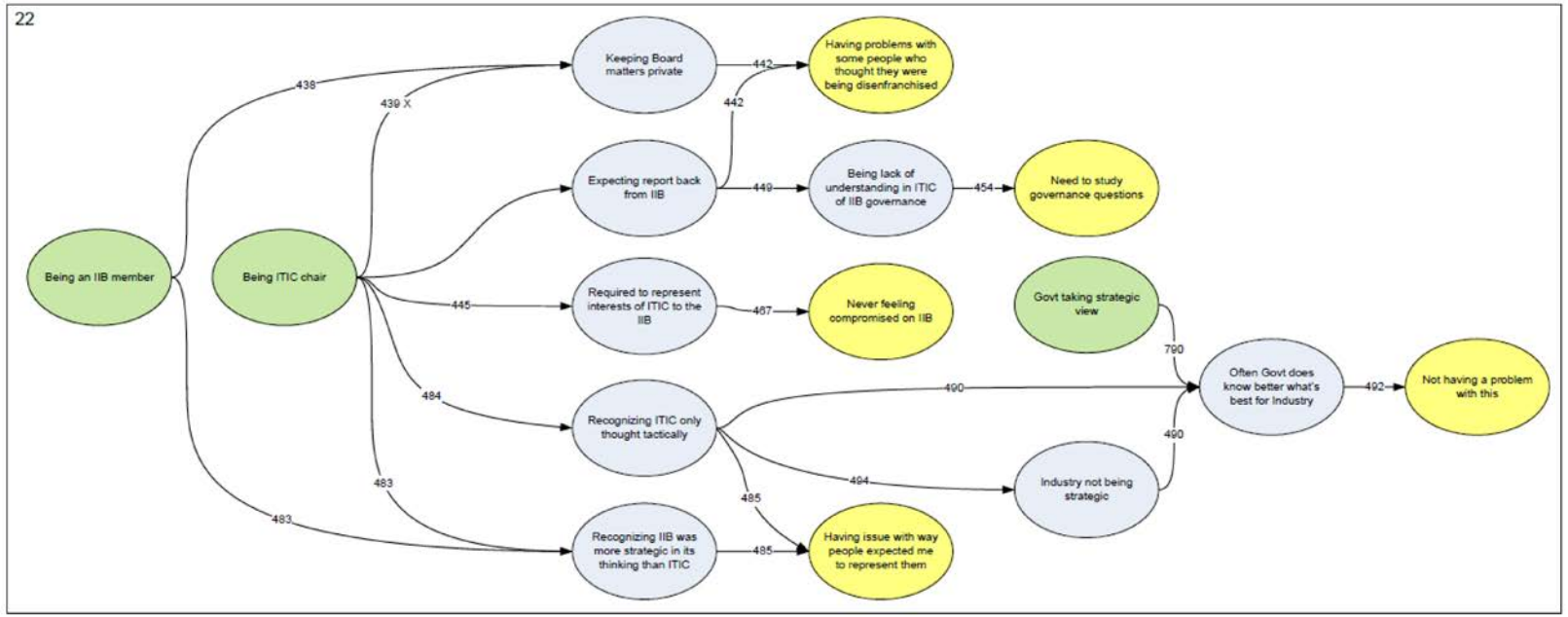

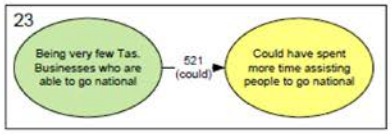

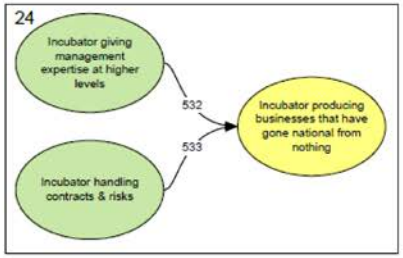

Interviewee G-5
Inputs are shown in green.
Output effects are shown in yellow.
Numbers on the links represent the line number of the interview transcript.

Appendix F: Data Tabulation

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
A	A-1/1	Selling the first slice of Telstra	Telstra sale	27	Establishing the TECC
A	A-1/3	Minister's advisor suggested name Intelligent Island	IIB establishment	102	Being accepted by B.
A	A-1/3	Being accepted by B.	IIB proposal development	103	Becoming name of program
A	A-1/4	IIB becoming a 5 year program	IIB establishment	114	Becoming the main appeal of the program
A	A-1/4	Boosted funding to $40 m	IIB funding	105	IIB becoming a 5 year program
A	A-1/5	Needing to develop other programs	Telstra/Tas strategy	106	Proposing the Computers in Schools
A	A-1/5	Needing to develop other programs	Telstra/Tas strategy	107	Enhancing local support for Computers in Schools
A	A-1/6	Insisting that money did not go to things that he objected to on moral, ethical or religious grounds	B.'s policies & principles	167, 170	Ensuring adequate filtering of content in Online Access Centres & Schools
A	A-1/6	Insisting that money did not go to things that he objected to on moral, ethical or religious grounds	B.'s policies & principles	176	Failure to gain agreement on $20 m Centre of Excellence
A	A-1/6	Starting the programs	IIB establishment	162	Establishing the Intelligent Island Board
A	A-1/6	Establishing the Intelligent Island Board	IIB establishment	162	B. becoming a Board member
A	A-1/6	B. becoming a Board member	IIB establishment	165	Insisting that money did not go to things that he objected to on moral, ethical or religious grounds
A	A-1/6	Failure to gain agreement on $20m Centre of Excellence	IIB Negotiations	197	Moving the money elsewhere
A	A-1/6	Moving the money elsewhere	IIB Negotiations	198	Uni not being able to take advantage of it
A	A-1/6	Moving the money elsewhere	IIB Negotiations	199	Being used for much the same reason as originally intended
A	A-1/6	Passing of second Telstra Sale legislation	Telstra sale	118	Starting the programs
A	A-1/6	Uni not wanting to compromise its academic / research principles	Uni policy & principles	176	Failure to gain agreement on $20 m Centre of Excellence
A	A-1/7	Inclusion of NTN money in T2 sale	NTN Funding	212	Establishing a Head of Agencies Committee
A	A-1/7	Establishing a Head of Agencies Committee	Tas Govt ICT strategy	--->	Trying to bring programs from T2 together
A	A-1/8	Seeking to spend the money strategically	Telstra/Tas strategy	238	Providing access to Internet through OACs
A	A-1/8	Providing access to Internet through OACs	Telstra/Tas strategy	239	Made Govt look good
A	A-1/8	Made Govt look good	Telstra/Tas strategy	239	Being politically good
A	A-1/8	Being politically good	Telstra/Tas strategy	240	Being strategically not so good
A	A-1/9	Inclusion in the Ind Audit	Fed Govt/Telstra strategy	--->	Being accepted by Alston's office
A	A-1/9	Being accepted by Alston's office	Fed Govt/Telstra strategy	258	Improving computer skills a strategic skills development
A	A-1/9	Being accepted by Alston's office	Fed Govt/Telstra strategy	272	Telstra adding $5 m to Computers in Schools program
A	A-1/9	Developing Computers in Schools proposals	Tas Govt - identification of sources of funds	248	Being knocked back when sale of Hydro failed
A	A-1/9	Developing Computers in Schools proposals	Tas Govt - identification of sources of funds	253	Being accepted by Alston's office
A	A-1/9	Developing Computers in Schools proposals	Tas Govt - identification of sources of funds	266	Inclusion in the Ind Audit
A	A-1/9	Being knocked back when sale of Hydro failed	Tas Govt - identification of sources of funds	--->	Being accepted by Alston's office
A	A-1/9	Receiving request for Computers in Schools from Dept of Education	Telstra/Tas strategy	247	Developing Computers in Schools proposals

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
A	A-2/2	Not wanting to trade his personal principles	B.'s policies & principles	140	Having the intent to develop an IT Ind in Tas.
A	A-2/2	Loss of support of Mal Colston	Fed Govt/Telstra strategy	52	Senate defeating Telstra sale bill
A	A-2/2	Senate defeating Telstra sale bill	Fed Govt/Telstra strategy	55	Reconsidering the Telstra Sale bill in following year
A	A-2/2	Reconsidering the Telstra Sale bill in following year	Fed Govt/Telstra strategy	58	Receiving a request from Sen. Alston for ideas to assist Tas. in ICT
A	A-2/2	Federal Govt. Wanting to relate T2 package to ICT	Fed Govt/Telstra strategy	145	Receiving a request from Sen. Alston for ideas to assist Tas. in ICT
A	A-2/2	Contacting the office of the Tas. Premier	Fed Govt/Telstra strategy	62	Receiving an unsatisfactory reply
A	A-2/2	Contacting the office of the Tas. Premier	Fed Govt/Telstra strategy	63-4	Receiving a visit from R. E.
A	A-2/2	Having a background in innovative entrepreneurship in Dept of Ind	Int A's policy & principles	72	Recognised the value of the idea
A	A-2/2	Recognised the value of the idea	Int A's policy & principles	75	Give them momentum
A	A-2/2	Write a paper based on the ICT Ind Audit	Tas Govt ICT strategy	76	Presented paper to B. with costings
A	A-2/2	Being put forward by the ICT Ind	Tas ICT strategy	75	Give them momentum
A	A-2/2	Having the intent to develop an IT Ind in Tas.	Telstra sale strategy development	124	Contacting the office of the Tas. Premier
A	A-2/2	Receiving a request from Sen. Alston for ideas to assist Tas. in ICT	Telstra sale strategy development	61	Contacting the office of the Tas. Premier
A	A-2/2	Give them momentum	Telstra sale strategy development	77	Presented paper to B. with costings
A	A-2/2	Presented paper to B. with costings	Telstra sale strategy development	77	B. being happy with paper
A	A-2/2	B. being happy with paper	Telstra sale strategy development	77	Present paper to Sen. Alston's office
A	A-2/2	Present paper to Sen. Alston's office	Telstra sale strategy development	79	Adding more dollars
A	A-2/2	Present paper to Sen. Alston's office	Telstra sale strategy development	78	Recognising the needs for more refinement
A	A-2/2	Present paper to Sen. Alston's office	Telstra sale strategy development	98	Preparing a separate parallel announcement by Telstra
A	A-2/2	Adding more dollars	Telstra sale strategy development	79	Writing revision of proposal description
A	A-2/2	Recognising the needs for more refinement	Telstra sale strategy development	78	Writing revision of proposal description
A	A-2/2	Wanting to make sure advanced Tas. ICT Ind significantly	Telstra sale strategy development	81	Writing revision of proposal description
A	A-2/2	Wanted to see demonstration from Telstra	Telstra sale strategy development	83	Proposing to Minister that some Telstra R & D be done in Tas.
A	A-2/2	Telstra have R & D at Clayton	Telstra sale strategy development	86	Proposing to Minister that some Telstra R & D be done in Tas.
A	A-2/2	Needing to see funding	Telstra sale strategy development	--->	Creating some sort of cluster of new enterprise
A	A-2/2	Creating some sort of cluster of new enterprise	Telstra sale strategy development	85	Proposing to Minister that some Telstra R & D be done in Tas.
A	A-2/2	Proposing to Minister that some Telstra R & D be done in Tas.	Telstra sale strategy development	94	Being taken seriously
A	A-2/2	Being taken seriously	Telstra sale strategy development	95	Telstra contributing $15 m
A	A-2/2	Being taken seriously	Telstra sale strategy development	95	Federal Govt. contributing $15 m

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
A	A-2/2	Telstra contributing $15 m	Telstra sale strategy development	98	Preparing a separate parallel announcement by Telstra
A	A-2/2	Federal Govt. contributing $15 m	Telstra sale strategy development	98	Preparing a separate parallel announcement by Telstra
A	A-2/2	Wanting to assist Tas.	Telstra/Tas strategy	139	Having the intent to develop an IT Ind in Tas.
A	A-2/2	Receiving a visit from R. E.	Telstra/Tas strategy	68	Being informed of the Tas. Ind Audits
A	A-2/2	Being informed of the Tas. Ind Audits	Telstra/Tas strategy	71	Write a paper based on the ICT Ind Audit
A	A-2/2	Being informed of the Tas. Ind Audits	Telstra/Tas strategy	74	Recognised the value of the idea
A	A-3/10	Wanting to do something for the State	B.'s policies & principles	299	Cooperation between B. & Tas. Govt
A	A-3/10	Tas. Labor Govt seeking to put stamp proposal through Ind Audit	Tas Govt ICT strategy	297	Cooperation between B. & Tas. Govt
A	A-3/10	Cooperation between B. & Tas. Govt	Tas Govt ICT strategy	298	Making Tas. Govt aware of opportunities
A	A-3/10	Emerging T2 sale	Telstra sale	296	Cooperation between B. & Tas. Govt
A	A-3/10	Looking for ideas	Telstra sale strategy development	275	Cooperation between B. & Tas. Govt
A	A-3/10	Responding to Ind Audit	Telstra sale strategy development	275	Cooperation between B. & Tas. Govt
A	A-3/11	Wanting to help the Ind	B.'s policies & principles	346	Wanting to enterprise
A	A-3/11	Wanting to enterprise	B.'s policies & principles	347	Create jobs
A	A-3/12	Not wanting to distribute the money	TECC policy & practice	353	Not wanting to upset the competition
A	A-3/13	TECC setting up websites	TECC policy & practice	362	Perception of unfair competition using Govt funding
A	A-3/14	Being more interested in getting programs up & things moving	TECC policy & practice	392-3	Being less interested in program evaluation
B	B-1/1	Having 2000-01 IT boom	ICT Economy (ca 2000)	11-12	Obtaining subsidies for getting customers online
B	B-1/1	Having 2000-01 IT boom	ICT Economy (ca 2000)	12	Being part of ICT research
B	B-1/1	Having 2000-01 IT boom	ICT Economy (ca 2000)	19	Bringing ICT research to a regional area
B	B-1/1	Obtaining subsidies for getting customers online	Telstra marketing	--->	Establishing B-eLab
B	B-1/1	Being part of ICT research	Telstra research	--->	Establishing B-eLab
B	B-1/1	Bringing ICT research to a regional area	Telstra research, Regional focus	--->	Establishing B-eLab
B	B-1/1	Bringing ICT research to a regional area	Telstra research, Regional focus	27	Being seen as a vote of confidence in Launceston
B	B-1/1	Establishing B-eLab	Telstra research, Regional focus, Broadband applications	33-4	Giving Tas. Graduates in ICT & Engineering option for developing careers
B	B-1/1	Establishing B-eLab	Telstra research, Regional focus, Broadband applications	44	Developing ICT skills base in Tas.
B	B-1/2	Focussing on software development activities	Broadband applications	58-9	Turning a disadvantage into an advantage
B	B-1/2	Wrapping up LBP funding in June [2006]	Regional focus, Broadband applications, ICT Ind development	49	Not having capability to fund living laboratory
B	B-1/2	Wrapping up LBP funding in June [2006]	Regional focus, Broadband applications, ICT Ind development	50	Focussing on software development activities
B	B-1/3	Rejection of IT as a career choice	ICT career choices	76	Steady drop in Uni numbers in IT
B	B-1/3	When IT bust happened	ICT Economy (ca 2000)	66	Being a challenge to get qualified staff
B	B-1/3	When IT bust happened	ICT Economy (ca 2000)	68-9	Rejection of IT as a career choice

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
B	B-1/3	Challenge to get critical mass of IT staff in Ltn	ICT recruitment, Regional focus	95	Being easier to hold good staff
B	B-1/3	Lack of itinerant pool of skilled people	ICT recruitment, Regional focus, ICT university graduations	95	Being easier to hold good staff
B	B-1/3	Steady drop in Uni numbers in IT	ICT university enrolment	77	Challenge to get critical mass of IT staff in Launceston
B	B-1/3	Steady drop in Uni numbers in IT	ICT university enrolment	86	Lack of itinerant pool of skilled people
B	B-1/4	Lack of IT recruiting entity in Tas.	ICT recruitment, Regional focus	90	Need to deal with Melbourne recruiters
B	B-1/4	Need to deal with Melbourne recruiters	ICT recruitment, Regional focus	91	Making it hard to recruit IT staff
B	B-1/4	Not knowing the Tas. Market by Melb. recruiters	ICT recruitment, Regional focus	91	Making it hard to recruit IT staff
B	B-1/5	Moving away from R&D	Broadband applications, Systems development, Changing organisational structure	107	Focussed on developing the product
B	B-1/5	Moving into network engineering	Broadband applications, Telstra network engineering, Changing organisational structure	107	Focussed on developing the product
B	B-1/5	Focussed on developing the product	Systems development, Telstra marketing	108	Developing widgets for Bigpond
B	B-1/5	Focussed on developing the product	Systems development, Telstra marketing	108	Developing customer management systems
B	B-1/5	Being no longer part of TRL [Telstra Research Labs]	Telstra research, Changing organisational structure	102	Moving into network engineering
B	B-1/5	Being no longer part of TRL [Telstra Research Labs]	Telstra research, Changing organisational structure	103	Moving away from R&D
B	B-2/10	Being able to do pre-launch testing	Telstra marketing, Product viability, Consumer feedback	155	Being seen as an advantage by Telstra marketing
B	B-2/10	Being able to do pre-launch testing	Telstra marketing, Product viability, Consumer feedback	155	Being able to iron out bugs before going public
B	B-2/10	Having an isolated regional group	Telstra marketing, Regional focus	157	Being seen as an advantage by Telstra marketing
B	B-2/10	Having an isolated regional group	Telstra marketing, Regional focus	156	Being able to iron out bugs before going public
B	B-2/10	Getting data on customer reactions & engagement	Telstra marketing, User acceptance testing, Consumer feedback	154	Being seen as an advantage by Telstra marketing
B	B-2/10	Getting data on customer reactions & engagement	Telstra marketing, User acceptance testing, Consumer feedback	154	Being able to iron out bugs before going public
B	B-2/11	Strong correlation with data when product was launched	Telstra marketing, Market analysis	178-80 X	Support significant difference in way Launceston reacted compared with greater market
B	B-2/11	Rolling out an application here & getting data on the reaction	Telstra marketing, Regional focus, Consumer feedback	178	Strong correlation with data when product was launched
B	B-2/6	Being integrated into engineering side of Telstra	Changing organisational structure, Telstra network engineering	116	Having a quite extensive server base
B	B-2/6	Being able to put products up that customers can try out	Community feedback, Telstra marketing	117	Learnt a lot about running operational platforms
B	B-2/6	Being able to put products up that customers can try out	Community feedback, Telstra marketing	122	Moved into some user acceptance testing
B	B-2/6	Developing operational capabilities from doing trails	Regional focus, Community feedback	116	Having a quite extensive server base

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
B	B-2/6	Having a quite extensive server base	Telstra infrastructure	117	Being able to put products up that customers can try out
B	B-2/7	Getting Govt funding	Fed Govt funding, Continuing viability of B-eLab	135	Allowed to focus on broadband applications
B	B-2/7	Getting Govt funding	Fed Govt funding, Continuing viability of B-eLab	137	Building up an area of expertise & skills
B	B-2/7	Focussing on getting niche area of expertise	ICT recruitment, Staff development, ICT skills base	135	Allowed to focus on broadband applications
B	B-2/7	Planning post end date of project	Project review, Project planning, Changing organisational structure	134	Focussing on getting niche area of expertise
B	B-2/7	Building up an area of expertise & skills	Staff development, ICT skills base	138	Working out how to fit into Telstra
B	B-2/8	Being on push rather than pull model	Telstra marketing, Systems development, Marketing models	145-6	Trying to get customers on this thing
B	B-2/8	Being on push rather than pull model	Telstra marketing, Systems development, Marketing models	146	Needing to work out the best way of engaging them
B	B-2/9	Encouraging them to be active	Telstra marketing, Community participation	152 X	Prove to be more effective to get customers to self select in trails
B	B-2/9	Use of financial model of inducement	Telstra marketing, Marketing models	152 X	Prove to be more effective to get customers to self select in trails
B	B-2/9	Use of financial model of inducement	Telstra marketing, Marketing models	153	Encouraging them to be active
B	B-3/12	Thinking it was successful	Market feedback	195-6	Managed to create a sustainable IT business in Tas.
B	B-3/12	Being the core of the LBP	Regional focus, Business development	189	Thinking it was successful
B	B-3/12	Being the core of the LBP	Regional focus, Business development	189	Ending up with 4,000 broadband customers
B	B-3/12	Being the core of the LBP	Regional focus, Business development	191	Bring some of these technologies to Launceston earlier
B	B-3/12	Being associated with TECC & BDF	Regional focus, Business development, Agency networking	189	Thinking it was successful
B	B-3/12	Being associated with TECC & BDF	Regional focus, Business development, Agency networking	189	Ending up with 4,000 broadband customers
B	B-3/12	Being associated with TECC & BDF	Regional focus, Business development, Agency networking	191	Bring some of these technologies to Launceston earlier
B	B-3/12	Bring some of these technologies to Ltn earlier	Regional ICT take-up, Early ICT adoption	192	Has had knock on effect with uptake of products
B	B-3/12	Ending up with 4,000 broadband customers	Telstra marketing, Regional ICT take-up	195-6	Managed to create a sustainable IT business in Tas.
B	B-3/12	Has had knock on effect with uptake of products	Telstra marketing, Regional ICT take-up, ICT diffusion	195-6	Managed to create a sustainable IT business in Tas.
B	B-3/12	Having a trial capability	Telstra marketing, User acceptance testing, Consumer feedback	189	Thinking it was successful
B	B-3/12	Having a trial capability	Telstra marketing, User acceptance testing, Consumer feedback	189	Ending up with 4,000 broadband customers
B	B-3/12	Having a trial capability	Telstra marketing, User acceptance testing, Consumer feedback	191	Bring some of these technologies to Launceston earlier

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
B	B-3/13	Not being able to grab people with right skills at the right time	ICT recruitment, Staff development, ICT skills base	262	Not being able to take on project
B	B-3/14	Forming relationships out of eLaunceston	Business development, Ind networking	272-3	Establishing B-eLab & LBP in Launceston
B	B-3/14	Being stakeholder in Ltn wanting to focus in information economy	ICT economy (ca 2000), Regional focus	273	Establishing B-eLab & LBP in Launceston
B	B-3/14	Political factor with B.	Funding from sale of Telstra	276	Establishing B-eLab & LBP in Launceston
B	B-3/15	Recognising business needs & marketing needs of Telstra	Telstra marketing, Telstra business requirements	285	Driving what the B-eLab does
B	B-3/16	Driving broadband uptake	Broadband applications, Regional ICT uptake	--->	Tended to kick off portals with seed money
B	B-3/16	Being out of dot com boom	ICT Economy (ca 2000)	297	Tended to kick off portals with seed money
B	B-3/16	Having strong relationship with the city council	Regional focus, Agency networking	295	Tended to kick off portals with seed money
B	B-3/16	Making a nice little earner	Telstra business focus	--->	Tended to kick off portals with seed money
B	B-3/16	Telstra vision that cmty portal commercialised & sold to every council / cmty in Aust	Telstra marketing, Telstra ICT strategy	298	Tended to kick off portals with seed money
B	B-3/16	Telstra vision that cmty portal commercialised & sold to every council / cmty in Aust	Telstra marketing, Telstra ICT strategy	300	Making a nice little earner
B	B-3/16	Telstra vision that cmty portal commercialised & sold to every council / cmty in Aust	Telstra marketing, Telstra ICT strategy	300	Driving broadband uptake
B	B-3/17	Commercial model not being there	Telstra marketing, ICT product commercialisation	303	Concept fading quietly
B	B-3/17	Commercial model not being there	Telstra marketing, ICT product commercialisation	310	Not answering how it is going to be sustainable
B	B-4/18	Needing to be a business model for sustainability	Telstra business strategy, Telstra investment strategy, ICT business viability	325	Not being a good answer
B	B-4/18	Taking over running of development	Business development, Regional focus	323	Needing to be a business model for sustainability
B	B-4/18	Talking to council about how to recoup costs	ICT business model	325	Not being a good answer
B	B-4/18	Kicking off research cycle in web & eCommunities	Telstra research, Community focus	321	Taking over running of development
B	B-4/19	Establishing interest-based portals in communities, not geographic	Community portals, Ubiquitous network access, Regional focus	335	Questionable about what model was to fund portal
B	B-4/19	Using premise of geographic-based portals	Regional focus, Local ICT Ind focus	335	Questionable about what model was to fund portal
B	B-4/19	Being online anyway	Ubiquitous network access	334	Establishing interest-based portals in communities, not geographic
B	B-4/20	Being of great value to those guys	Telstra marketing, Product evaluation, Consumer feedback	393	Enabled them to hone in on particular market
B	B-4/20	Being of great value to those guys	Telstra marketing, Product evaluation, Consumer feedback	393	Focus on particular aspects of technology
B	B-4/20	Conduct of early prototype research with immersive audio product	Telstra research, Consumer feedback	392	Being of great value to those guys
B	B-4/21	Recognising that investing in the trial group was a challenge	Telstra business strategy, Telstra investment strategy,	416	Not having a good answer
B	B-4/21	Coming up with ways to engage the greater community	Telstra marketing, ICT uptake, Community diversity	414	Tried to have things to engage the different demographics

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
B	B-4/21	Tried to have things to engage the different demographics	Telstra marketing, ICT uptake, Community diversity	416	Recognising that investing in the trial group was a challenge
B	B-4/21	Having a diverse group as a trial community	Telstra marketing, Regional focus, Community feedback, Community diversity	410	Coming up with ways to engage the greater community
C	C-1/1	Reviewing other States' policies & outcomes	Australian Governments ICT Policy & Practice	60	Separating ICT policy for Service
C	C-1/1	Reviewing other States' policies & outcomes	Australian Governments ICT Policy & Practice	70	Recognising the need to separate ICT policy formulation from service delivery
C	C-1/1	Recognising need to separate ICT policy formulation from service delivery	Australian Governments ICT Policy & Practice	70	Separating ICT policy for Service
C	C-1/1	Separating ICT policy for Service	Australian Governments ICT Policy & Practice	81	Keeping ICT policy in Treasury & DPAC
C	C-1/1	Separating ICT policy for Service	Australian Governments ICT Policy & Practice	83	Moving ICT service delivery to Service Tas. for the public interface
C	C-1/1	Push from OGIT for outsourcing of ICT	Fed Government ICT Policy & Practice, Tas Government ICT Policy & Practice	55	Separating ICT policy for Service
C	C-1/1	Contributed to Directions Statements [1997]	Tas Government ICT Policy & Practice	38	State being positioned to take opportunity of sale of Telstra
C	C-1/1	Contributed to Directions Statements [1997]	Tas Government ICT Policy & Practice	115	Establishing Online Access Centre network
C	C-1/1	Contributed to Directions Statements [1997]	Tas Government ICT Policy & Practice	42	Establishing a number of ICT initiatives
C	C-1/1	Establishing Online Access Centre network	Tas Government ICT Policy & Practice	117	Giving Tas. a leading position in public Internet access
C	C-1/1	Establishing a number of ICT initiatives	Tas Government ICT Policy & Practice	46	Outsourcing of whole of Govt telephony & network infrastructure
C	C-1/1	Establishing a number of ICT initiatives	Tas Government ICT Policy & Practice	47	Establishing in Computers in Schools program
C	C-1/1	Establishing a number of ICT initiatives	Tas Government ICT Policy & Practice	44	Promoting establishment of call centres
C	C-1/1	Promoting establishment of call centres	Tas Government ICT Policy & Practice	49	Conducting ICT Ind audit
C	C-1/1	Getting input from ICT consultants	Tas Government ICT Policy & Practice	68	Separating ICT policy for Service
C	C-1/1	Recognising the need for whole of Govt approach	Tas Government strategy	33	Establishing IRM Task Force in 1993
C	C-1/1	Recognising the need for whole of Govt approach	Tas Government strategy	81	Separating ICT policy for Service
C	C-1/1	Establishing IRM Task Force in 1993	Tas Government strategy, IRM Policy	36	Contributed to writing Directions Statements in 1997
C	C-1/1	Conducting ICT Ind audit	Tas ICT Ind Audit	50	Being positioned to bid for Telstra funds
C	C-1/1	Change of Govt in 1998	Change of ICT policy in Tas Government	49	Promoting establishment of call centres
C	C-2/2	UTas being part of initial roll-out of AARNet	AARNET roll-out		Being globally connected
C	C-2/2	Installing fibre networks on both UTas campuses	UTas campus network roll-out		Being globally connected
C	C-2/3	Lack of draw through to local employment	ICT Demand for Graduates in Tas	153	Taking about 5 years to build up numbers over 1997-2002
C	C-2/3	Lack of draw through to local employment	ICT Demand for Graduates in Tas	153	Being low enrolments in advanced dip. ICT courses at TAFE
C	C-2/3	Lack of perception of outcomes of ICT courses	ICT Demand for Graduates in Tas, ICT Skills in Tas	152	Being low enrolments in advanced dip. ICT courses at TAFE
C	C-2/3	Lack of investment in ICT courses at UTas	UTas level of support of ICT schools	144	Suffering from an ICT enrolment lag

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
C	C-2/3	Lack of investment in ICT courses at UTas	UTas level of support of ICT schools	145	Taking about 5 years to build up numbers over 1997-2002
C	C-2/4	Create expectation that $170m would put Tas ICT on map	Expectations of Social Bonus Package for Tas	159-63	Trying to follow New Brunswick with quick win call centre & ICT development
C	C-2/4	Conducting a lot of discussion about New Brunswick model	Regional ICT Investment	161,163	Trying to follow New Brunswick with quick win call centre & ICT development
C	C-2/5	Realisation by IIB that this is a drop in ocean of funding	Expectations of Social Bonus Package for Tas	165	Realising $ wouldn't go anywhere
C	C-2/5	Realising $ wouldn't go anywhere	Expectations of Social Bonus Package for Tas	169	Concern about creating a sustainable Ind
C	C-2/5	Concern about creating a sustainable Ind	Expectations of Social Bonus Package for Tas	169	Spending time to attract investors
C	C-2/5	Needing significant collaborative investment from Ind	ICT Ind investment, Collaborative investment of govt & Ind	166	Realising $ wouldn't go anywhere
C	C-2/5	Needing significant collaborative investment from Ind	ICT Ind investment, Collaborative investment of govt & Ind	170	Spending time to attract investors
C	C-2/6	Input to IIB from State Agency heads was limited	Relationship of IIB and Tas Govt agencies	185	Being an absence of direction to IIB from State Govt
C	C-2/6	Being an absence of direction to IIB from Tas Govt	Relationship of IIB and Tas Govt agencies	231	Being realistic about possible achievements
C	C-2/6	Creating a backlash from non-funding recipients	Relationship of IIB and Tas Ind	205	Creating perception of antagonism towards IIB
C	C-2/6	Creating perception of antagonism towards IIB	Relationship of IIB and Tas Ind	231	Being realistic about possible achievements
C	C-2/7	Submitting proposal to Nixon Enquiry into Tas economy [1996]	ICT Ind investment, Tas economic development	217	Establishment of TECC
C	C-2/7	Submitting proposal to Nixon Enquiry into Tas economy [1996]	ICT Ind investment, Tas economic development	218	Seeking $4.5m from Networking the Nation
C	C-2/7	Seeking $4.5m from Networking the Nation	ICT Ind investment, Tas economic development	218	Establishment of TECC
C	C-2/8	Existing requirements under BITS program	IIB strategy & roll-out	249	Establishing Interlink Incubator program
C	C-2/8	Engaging Allen Group of consultants by IIB	IIB strategy & roll-out	234	Establishing IIB strategic plan of 6 segments
C	C-2/8	Establishing IIB strategic plan of 6 segments	IIB strategy & roll-out	242-3	Establishing Interlink Incubator program
C	C-2/8	Establishing IIB strategic plan of 6 segments	IIB strategy & roll-out	246	Establishing blueprint for IIB activities
C	C-2/8	Establishing IIB strategic plan of 6 segments	IIB strategy & roll-out	235-44	Apportioning $40m to each of these segments
C	C-2/8	Establishing IIB strategic plan of 6 segments	IIB strategy & roll-out	247 X	Spending much $ by 2003
C	C-2/9	Lack of funds for investment attraction	Expectations of IIB funding	264	Recommending against continuing investment attraction by IIB
C	C-3/10	Attempting to attract Ind investment	ICT Ind investment attraction	268	IIB recommending adoption of Health Informatics for Centre of Excellence (CoE)
C	C-3/10	IIB recommending Health Informatics for CoE	IIB Centre of Excellence development	272 X	Establishing CoE in Health Informatics
C	C-3/10	Consideration of different CoE scenarios by IIB	IIB strategy & roll-out, IIB Centre of Excellence development	266	IIB recommending adoption of Health Informatics for Centre of Excellence (CoE)
C	C-3/10	Negotiation with UTas & Tas. Govt	Relationship between IIB, Tas Govt & UTas	271	IIB recommending adoption of Health Informatics for Centre of Excellence (CoE)
C	C-3/11	Lacking performance measures for IIB	Expectations of IIB funding, IIB Business Case	276	Creating expectation of starting an ICT Ind
C	C-3/11	Insisting on ICT focus by B.	IIB Policy & Practice	282	Creating expectation of starting an ICT Ind

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
C	C-3/11	Insisting on social & regional equity by B.	IIB Policy & Practice, Social equity of ICT investment	279	Creating expectation of starting an ICT Ind
C	C-3/12	Surveying Tas. ICT Ind by IIB	Tas ICT Ind Audit, IIB strategy & roll-out	286	Uncertainty of number of people in ICT companies
C	C-3/12	Surveying Tas. ICT Ind by IIB	Tas ICT Ind Audit, IIB strategy & roll-out	289	Recognising ICT companies were leaving Tas.
C	C-3/12	Not being able to survive in Tas.	Viability of Tas ICT Ind	290	Recognising ICT companies were leaving Tas.
C	C-3/12	Uncertainty of number of people in ICT companies	Viability of Tas ICT Ind, ICT skills in Tas	292	Funding companies to get over the threshold
C	C-3/12	Uncertainty of number of people in ICT companies	Viability of Tas ICT Ind, ICT skills in Tas	294	Attracting limited number of new companies to State
C	C-3/12	Recognising ICT companies were leaving Tas.	Viability of Tas ICT Ind, ICT skills in Tas	292	Funding companies to get over the threshold
C	C-3/12	Recognising ICT companies were leaving Tas.	Viability of Tas ICT Ind, ICT skills in Tas	294	Attracting limited number of new companies to State
C	C-3/13	Eagerness of IIB chair to establish international links with Tas. ICT companies	ICT Ind investment attraction	317	Encouraging a more global perspective
C	C-3/13	Conducting activities of IIB	Viability of Tas ICT Ind, ICT Ind investment attraction	303	Raising spectre of ICT as a viable Ind
C	C-3/13	Conducting activities of IIB	Viability of Tas ICT Ind, ICT Ind investment attraction	324	Assisting companies with developing viable ICT business plan
C	C-3/13	Conducting activities of IIB	Viability of Tas ICT Ind, ICT Ind investment attraction	312	Mentoring some ICT companies
C	C-3/13	Conducting activities of IIB	Viability of Tas ICT Ind, ICT Ind investment attraction	313	Funding international trade & investment trips by ICT companies
C	C-3/13	Conducting activities of IIB	Viability of Tas ICT Ind, ICT Ind investment attraction	315	Encouraging a more global perspective
C	C-3/13	Raising spectre of ICT as a viable Ind	Viability of Tas ICT Ind, ICT Ind investment attraction	312	Countering perception of non-credibility of ICT Ind
C	C-4/14	Not realising expectations of funding	Expectations of IIB funding, Outcome of IIB programs	370	Perception that IIB ineffectual
C	C-4/14	Lack of spending of IIB funds	IIB policy & practice, Outcomes of IIB programs	360	Establishing CSIRO ICT Centre in Hobart
C	C-4/14	Lack of spending of IIB funds	IIB policy & practice, Outcomes of IIB programs	369	Perception that IIB ineffectual
C	C-4/14	Lack of spending of IIB funds	IIB policy & practice, Outcomes of IIB programs	382	Having little effect on ICT Ind
C	C-4/14	Failure to negotiate CoE with UTas	IIB policy & practice, Outcomes of IIB programs	359	Establishing CSIRO ICT Centre in Hobart
C	C-4/14	Failure to negotiate CoE with UTas	IIB policy & practice, Outcomes of IIB programs	369	Perception that IIB ineffectual
C	C-4/14	Failure to negotiate CoE with UTas	IIB policy & practice, Outcomes of IIB programs	--->	Having little effect on ICT Ind
C	C-4/15	Creating BDF in Launceston	ICT business development in Ltn	389	Frustration with quality of applicants
C	C-4/15	Applicants needing to have B-eLab relevance	ICT business development in Ltn, Ind collaboration with B-eLab	388	Frustration with quality of applicants
C	C-4/15	Having low level of applicants	ICT skills in Tas, ICT Ind development in Tas	392	Frustration with quality of applicants
C	C-4/15	Having low level of applicants	ICT skills in Tas, ICT Ind development in Tas	394	Funding of short term outcomes
C	C-4/15	Frustration with quality of applicants	ICT skills in Tas, ICT Ind development in Tas	394	Funding of short term outcomes

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
C	C-4/15	Not working with Ind to develop applicants	Ind collaboration with B-eLab	392	Frustration with quality of applicants
C	C-4/16	Existing competition between small players in ICT Ind	Maturity of Tas ICT Ind	399	Lack of establishment of ICT clusters
C	C-4/16	Lacking diversity of Ind base	Maturity of Tas ICT Ind	400	Lack of establishment of ICT clusters
C	C-4/16	Lack ICT Ind vision	Maturity of Tas ICT Ind	402	Lack of establishment of ICT clusters
D	D-1/1	Establishing TECC	TECC (non)objectives	25 X	(not) Supporting & developing IT sector
D	D-1/1	Establishing TECC	TECC (non)objectives	12-3 X	(not) Funding of Tasmanian IT businesses
D	D-1/1	Establishing TECC	TECC (non)objectives	13-5	Overcoming disparity between regional & metro. businesses in terms of exposure to new online tech.
D	D-1/1	Establishing TECC	TECC (non)objectives	33-5	Seeking to improve business process through BPR, new markets, BI
D	D-1/1	Establishing TECC	TECC (non)objectives	62	Raising of awareness
D	D-1/1	Showing by stats of low uptake - benefit of online tech. / smart businesses in Tas	TECC (non)objectives	16-9	Overcoming disparity between regional & metro. businesses in terms of exposure to new online tech.
D	D-1/1	Overcoming disparity between regional & metro. businesses in terms of exposure to new online tech.	TECC (non)objectives, TECC policy & practice	23	Needing work to be done
D	D-1/1	Raising of awareness	TECC (non)objectives, TECC policy & practice	62	Becoming smarter business users of technology
D	D-1/1	Becoming smarter business users of technology	TECC (non)objectives, TECC policy & practice	63	Achieving significant benefits for IT firms
D	D-1/1	TECC created a range of products	TECC (non)objectives, TECC policy & practice, Relationship with ICT Ind	37	Catalysing & helping local IT Ind
D	D-1/1	TECC created a range of products	TECC (non)objectives, TECC policy & practice	35-6	Getting more value from tech. in business
D	D-1/1	TECC created a range of products	TECC (non)objectives, TECC policy & practice	36-7 X	(not) Buying & imposing new tech.
D	D-1/1	TECC created a range of products	TECC (non)objectives, TECC policy & practice	38-9	Creating a demand for IT services in trad. businesses
D	D-1/1	TECC created a range of products	TECC (non)objectives, TECC policy & practice	72	Assessing of products & feedback on a competitive basis
D	D-1/1	Catalysing & helping local IT Ind	TECC (non)objectives, TECC policy & practice, TECC success assessment	--->	Having been successful
D	D-1/1	Getting more value from tech. in business	TECC (non)objectives, TECC policy & practice, TECC success assessment	--->	Having been successful
D	D-1/1	(not) Buying & imposing new tech.	TECC (non)objectives, TECC policy & practice, TECC success assessment	--->	Having been successful
D	D-1/1	Creating a demand for IT services in traditional businesses	TECC (non)objectives, TECC policy & practice, TECC success assessment	--->	Having been successful
D	D-1/1	Assessing of products & feedback on a competitive basis	TECC (non)objectives, TECC policy & practice, TECC success assessment	74	Funding of 100-120 / 600 proposals
D	D-1/1	Funding of 100-120 / 600 proposals	TECC (non)objectives, TECC policy & practice	78	Getting money out of the door
D	D-1/1	Funding of 100-120 / 600 proposals	TECC (non)objectives, TECC policy & practice	78	Giving a huge boost to activity
D	D-1/1	Having been successful	TECC (non)objectives, TECC policy & practice	42-4	Developed products, workshops & methodologies of smart business, BPR, etc.

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
D	D-1/1	Having been successful	TECC (non)objectives, TECC policy & practice	476	Assisting in looking to improved business performance
D	D-1/1	Having been successful	TECC policy & practice, Relationship with ICT Ind	48	Having strong relationship with Tas. IT business
D	D-1/1	Having been successful	TECC policy & practice, Relationship with ICT Ind	49	Working with Tas. IT business to finalise applications
D	D-1/1	Having been successful	TECC policy & practice, Relationship with ICT Ind, Investment attraction	53	Generate $25-30 m investment into Tas. business
D	D-1/1	Having been successful	TECC policy & practice, Relationship with ICT Ind, TECC success assessment	60	Helping a lot of local IT firms to do well
D	D-1/1	Having strong relationship with Tas. IT business	TECC policy & practice, Relationship with ICT Ind	50-1	Having a lot of interaction with local IT firms
D	D-1/1	Working with Tas. IT business to finalise applications	TECC policy & practice, Relationship with ICT Ind	50-1	Having a lot of interaction with local IT firms
D	D-1/1	Generate $25-30 m investment into Tas. business	TECC policy & practice, TECC success assessment, Investment attraction	--->	Achieving significant benefits for IT firms
D	D-1/1	Helping a lot of local IT firms to do well	TECC policy & practice, TECC success assessment, Relationship with ICT Ind	66	Achieving significant benefits for IT firms
D	D-1/1	Achieving significant benefits for IT firms	Business practice improvement, TECC success assessment, Relationship with ICT Ind	64	Refining business plans
D	D-1/1	Achieving significant benefits for IT firms	Business practice improvement, Relationship with ICT Ind	65	Making sure apps were appropriate
D	D-1/1	Achieving significant benefits for IT firms	Business practice improvement, Relationship with ICT Ind	68	Putting businesses through the wringer
D	D-1/1	Putting businesses through the wringer	Business practice improvement, Relationship with ICT Ind	66	Took a lot of risk out of traditional business
D	D-1/1	Putting businesses through the wringer	Business practice improvement, Relationship with ICT Ind	70	Making sure they had a sound business plan
D	D-2/2	Establishing IIB	Business practice improvement, Relationship with ICT Ind	27-8	Trying to help new technology business in Tasmania
D	D-2/2	Establishing IIB	Business practice improvement, Relationship with ICT Ind, ICT export enhancement	28-9	Capitalising on export opportunities
D	D-2/3	Raising concerns about 2001 dot com crash	ICT awareness raising, Forecasting tech-wreck	80	Affecting a lot of things, co-investment, slowing down
D	D-2/4	Strategising goals of TECC	TECC (non)objectives, TECC policy & practice, ICT export enhancement	94	Leaving awareness in traditional businesses
D	D-2/4	Strategising goals of TECC	TECC (non)objectives, TECC policy & practice, Business practice improvement	95	Providing clear access to support & expertise in global marketplace
D	D-2/5	Changing times, 1997-now	TECC evolution 1997-2009, TECC policy & practice	99-101	Changing emphasis & demand for ICT
D	D-2/5	Changing times, 1997-now	TECC evolution 1997-2009, TECC policy & practice	102-4	Providing new online services

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
D	D-2/6	Maintenance of existing fiefdoms	Influence on Tas Government ICT policy & practice	132	Changes in Government purchasing techniques
D	D-2/6	Size of private sector in Tasmania	Influence on Tas Government ICT policy & practice	136	Changes in Government purchasing techniques
D	D-2/7	Competing of TECC in private sector	TECC policy & practice, Relationship with ICT Ind	146	Bringing up a lot of issues
D	D-2/8	Decrease of relative investment in IT over '02-'05	TECC evolution 1997-2009, TECC policy & practice	161	Looking into issues why things weren't happening in Tas.
D	D-2/8	Decrease of relative investment in IT over '02-'05	TECC evolution 1997-2009, TECC policy & practice	161	Recognising infrastructure as becoming important
D	D-2/8	Existence of a single wholesale Telco in Tasmania	TECC evolution 1997-2009, TECC policy & practice, Tas ICT infrastructure	166	Recognising infrastructure as becoming important
D	D-2/8	Purchasing of optic fibre by Tas. Government	TECC evolution 1997-2009, TECC policy & practice, Tas ICT infrastructure	173	Making important groundbreaking & strategic decisions
D	D-2/8	Recognising infrastructure as becoming important	Tas ICT infrastructure	174	Happening stuff in Tas. eg TasCOLT
D	D-2/8	Making important groundbreaking & strategic decisions	Tas ICT infrastructure	175	Happening stuff in Tas. eg TasCOLT
D	D-2/8	Happening stuff in Tas. eg TasCOLT	Tas ICT infrastructure, Assessment of success	175-6	Being very proud of our involvement & initiation
D	D-2/9	Establishing AECC	Establishing AECC, ICT export enhancement	179	Make sure the ability to earn income from products ex Tas.
D	D-2/9	Establishing AECC	Establishing AECC, Attracting major national ICT contracts	180-1	Getting major contract to do regional broadband at forums nationally
D	D-2/9	Establishing AECC	Establishing AECC, Public relations	183 X	(not) Confuse people about spending money ex Tas.
D	D-2/9	Getting major contract to do regional broadband at forums nationally	TECC policy & practice, National broadband profile	181-2	Keeping TECC running in lean times
D	D-2/9	Creating TECC profile	TECC policy & practice, Public relations	184	Receiving a lot of enquiries from other regions re products & services
D	D-2/9	Receiving a lot of enquiries from other regions re products & services	TECC policy & practice, Public relations	186	Organising some staff to talk to them
D	D-2/9	Receiving a lot of enquiries from other regions re products & services	TECC policy & practice, Public relations, TECC marketing	187	Organising licences for our products
D	D-2/9	Organising licences for our products	TECC policy & practice, Public relations	--->	Keeping TECC running in lean times
D	D-3/10	Speaking at 2010 forum	Public awareness	205	Creating interest
D	D-3/11	Brought people in to do project management courses	Business practice improvement, Professional development	217-8	Making sure investments had best chance of success
D	D-3/12	Did a lot of research	Conduct of research (with UTas)	219	Having post-graduates from University
D	D-3/13	Lack of resources to manage knowledge	Knowledge management	222	Lack of resources to manage knowledge
D	D-3/14	Co-operating with Ind groups on project ~ $50k	Business practice improvement, Relationship with Ind	243	Separate from IIB, etc.
D	D-3/15	Renegotiating funding with shareholders	TECC shareholder relationships	254	Not being a good time to say where we are going

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
D	D-3/16	Maintaining 2 programs in TECC	TECC policy & practice, Relationship with ICT Ind	259	Continuing work with traditional business EC, smart ICT, eGovernment, etc.
D	D-3/16	Maintaining 2 programs in TECC	TECC policy & practice, Relationship with ICT Ind	260	Trying to get IT, ICT, infrastructure of future, located in Tas.
D	D-3/16	Trying to get IT, ICT, infrastructure of future, located in Tas.	TECC policy & practice, Relationship with ICT Ind, Tas ICT infrastructure	--->	Attracting new industries & services
D	D-3/16	Trying to get IT, ICT, infrastructure of future, located in Tas.	TECC policy & practice, Relationship with ICT Ind, Tas ICT infrastructure	263	Can look at whole new list of opportunities
D	D-3/16	Having got optic fibre & Basslink	Tas ICT infrastructure	263	Can look at whole new list of opportunities
D	D-3/17	Input from Tas & Fed politicians in early years	TECC (non)objectives	238	Shaping of TECC
D	D-3/18	Business community & Govt acting together about strategic plan	TECC policy & practice, Relationship with ICT Ind, Relationship with Tas Govt	271	Securing a really proportional amount of money from Tas.
D	D-3/19	Reducing resources	TECC policy & practice (refocussing), TECC downsizing	292	Not being the organisation we were
D	D-3/19	Reducing resources	TECC policy & practice (refocussing), TECC downsizing	--->	Not having the resources to promote
D	D-3/19	Not relying on that sort of retail	TECC policy & practice (refocussing), TECC downsizing	294	Have not been promoting ourselves
D	D-3/19	Not relying on that sort of retail	TECC policy & practice (refocussing), TECC downsizing	297	Working as a quiet organisation, still pushing the message
D	D-3/19	Not having the resources to promote	TECC policy & practice (refocussing), TECC downsizing	295	Have not been promoting ourselves
D	D-3/19	Not having the resources to promote	TECC policy & practice (refocussing), TECC downsizing	297	Working as a quiet organisation, still pushing the message
D	D-3/20	Not being completely obvious	TECC policy & practice (refocussing), TECC downsizing, Public relations	302-3	Being too hard for them to understand
D	D-3/21	Focusing on small resources	TECC policy & practice (refocussing), Tas ICT infrastructure	303-5	Working on strategy for some important themes for Tas.
D	D-3/21	Focusing on small resources	TECC policy & practice (refocussing), Tas ICT infrastructure	303-5	Working close to shareholders
D	D-3/21	Focusing just on project	TECC policy & practice (refocussing), Tas ICT infrastructure	306	Working on strategy for some important themes for Tas.
D	D-3/21	Focusing just on project	TECC policy & practice (refocussing), Tas ICT infrastructure	306	Working close to shareholders
D	D-3/21	Not promising the world	TECC policy & practice (refocussing), Tas ICT infrastructure, Public relations	--->	Working on strategy for some important themes for Tas.
D	D-3/21	Not promising the world	TECC policy & practice (refocussing), Tas ICT infrastructure, Public relations	--->	Working close to shareholders
D	D-3/21	Hoping for renewed funding	TECC policy & practice (refocussing), Tas ICT infrastructure	--->	Working on strategy for some important themes for Tas.

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
D	D-3/21	Hoping for renewed funding	TECC policy & practice (refocussing), Tas ICT infrastructure	--->	Working close to shareholders
D2	D2-1/1	Establishing TECC	TECC (non)objectives	3 X	(not) Developing ICT Ind
D2	D2-1/1	Establishing TECC	TECC (non)objectives	4	Creating more intelligent users
D2	D2-1/1	Establishing TECC	TECC (non)objectives, ICT market expansion	5	Creating a market for ICT Ind
D2	D2-1/1	Creating more intelligent users	TECC policy & practice, EC systems development	12	Being asked to refine & implement EC systems & technology
D2	D2-1/1	Creating a market for ICT Ind	TECC policy & practice, EC systems development	12	Being asked to refine & implement EC systems & technology
D2	D2-1/2	Tasmania wanting to participate in ICT boom	Stakeholder consultation	146	Consulting a wide group of stakeholders
D2	D2-1/2	Making available RTIF funds	Stakeholder consultation	147	Consulting a wide group of stakeholders
D2	D2-1/2	Consulting a wide group of stakeholders	Stakeholder consultation	46-8	Producing an initial business plan for the TECC
D2	D2-1/2	Consulting a wide group of stakeholders	Stakeholder consultation	120	Maintaining a state-wide focus
D2	D2-1/2	Producing an initial business plan for the TECC	Developing TECC proposal	74-5	Writing proposal for $4.5 m funding
D2	D2-1/2	Writing proposal for $4.5 m funding	Developing TECC proposal	132	TECC becoming number 1 priority under Networking the Nation
D2	D2-1/2	Writing proposal for $4.5 m funding	Developing TECC proposal, Identifying digital divide	88-90	Pointing out overcoming disparity between regional & metropolitan ICT & uptake & use of advanced ICT
D2	D2-1/3	Assessing business practices for EC Ready	TECC policy & practice, Business assessment	187	Needing to develop a business plan
D2	D2-1/3	Assessing business practices for EC Ready	TECC policy & practice, Business assessment	189	Identifying a technology partner
D2	D2-1/3	Needing to develop a business plan	TECC policy & practice, EC business development	190	Granting EC funding
D2	D2-1/3	Identifying a technology partner	TECC policy & practice, EC business development	190	Granting EC funding
D2	D2-1/3	Granting EC funding	TECC policy & practice, EC business development	191	TECC monitoring milestones
D2	D2-1/3	Granting EC funding	TECC policy & practice, EC business development	195-7	Funding Tas Arts & Cmty Online, Apple & Pear Growers, Blundstones, King Is. Dairies
D2	D2-1/4	Assessing their staff	TECC policy & practice, e-Business awareness raising	206	Raising EC awareness
D2	D2-1/4	Raising EC awareness	TECC policy & practice, EC business development	207	Giving development assistance
D2	D2-1/4	Giving development assistance	TECC policy & practice, EC business development	207	Achieving business results
D2	D2-1/4	Giving development assistance	TECC policy & practice, EC business development	206-9	Providing fine tuning & ongoing capability
D2	D2-1/5	Blowing our little trumpet	TECC policy & practice, Public relations	212	Letting people know what we are going
D2	D2-1/5	Letting people know what we are going	TECC policy & practice, Public relations	214	Funding EC Enable $1.8 m from Federal Government, ARIBA Involve, KPMG
D2	D2-1/5	Funding EC Enable $1.8m from Fed Govt, ARIBA Involve, KPMG	EC systems development, Ind collaboration	215	Establish Tas Business Online
D2	D2-1/5	Establish Tas Business Online	EC systems development, Ind collaboration	218	Increased transacting online
D2	D2-1/5	Establish Tas Business Online	EC systems development, Ind collaboration, Relationship with Tas Govt	219 X	(not) Getting Government purchasing online
D2	D2-2/10	Feeding to partner organisations	e-Business awareness raising	328	Getting people into EC Aware
D2	D2-2/10	Getting people into EC Aware	e-Business awareness raising	330	Assessing online outcomes

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
D2	D2-2/10	Assessing online outcomes	TECC success assessment	331	Getting them into EC Ready
D2	D2-2/10	Getting them into EC Ready	EC Business development	331	Partnering them
D2	D2-2/10	Getting them into EC Ready	EC Business development	332	Removing the risk at each stage
D2	D2-2/11	Having hindsight of dot com crash	Post Y2K & tech-wreck downsizing, TECC (non)objectives (refocussing)	347	Taking greater care – less risk
D2	D2-2/11	Having hindsight of dot com crash	Post Y2K & tech-wreck downsizing, TECC (non)objectives (refocussing)	355	Not funding some projects
D2	D2-2/12	Being aware of skills shortage	ICT skills shortage	369	Identifying young champions in funded projects
D2	D2-2/13	Having post grad students who weren't supervised	TECC-Uni relationships, Conduct of research (with UTas)	379	Thinking that would have handled Uni a lot differently
D2	D2-2/13	Not getting knowledge management from Uni	TECC-Uni relationships, Knowledge management	380	Thinking that would have handled Uni a lot differently
D2	D2-2/14	Being under resourced	TECC-Uni relationships	387-8	X (not) Partnering with School of IS
D2	D2-2/14	Paying full salary to post grad students	TECC-Uni relationships	386	X (not) Partnering with School of IS
D2	D2-2/14	Everyone was learning	TECC-Uni relationships	387-8	X (not) Partnering with School of IS
D2	D2-2/6	Exposing a lot of [companies to] EC	EC business development, TECC success assessment	227	Developing their own strategies
D2	D2-2/6	Exposing a lot of [companies to] EC	EC business development, TECC success assessment	226	Being quite proud of their achievements
D2	D2-2/6	Exposing a lot of [companies to] EC	EC business development, TECC success assessment	228	Procuring online, developing online catalogues
D2	D2-2/6	Having dot com crash	Post Y2K & tech-wreck downsizing	230-3	X Developing their own strategies
D2	D2-2/6	Having dot com crash	Post Y2K & tech-wreck downsizing	230-3	X Being quire proud of their achievements
D2	D2-2/6	Having dot com crash	Post Y2K & tech-wreck downsizing	230-3	X Procuring online, developing online catalogues
D2	D2-2/6	Slowing down after Y2K	Post Y2K & tech-wreck downsizing	230-3	X Developing their own strategies
D2	D2-2/6	Slowing down after Y2K	Post Y2K & tech-wreck downsizing	230-3	X Being quire proud of their achievements
D2	D2-2/6	Slowing down after Y2K	Post Y2K & tech-wreck downsizing	230-3	X Procuring online, developing online catalogues
D2	D2-2/6	Investment after T2 failing	Post Y2K & tech-wreck downsizing	230-3	X Developing their own strategies
D2	D2-2/6	Investment after T2 failing	Post Y2K & tech-wreck downsizing	230-3	X Being quire proud of their achievements
D2	D2-2/6	Investment after T2 failing	Post Y2K & tech-wreck downsizing	230-3	X Procuring online, developing online catalogues
D2	D2-2/7	Banging the drum on that sort of thing	TECC policy & practice, Public relations	253	Turning up on 13 Dec 1997
D2	D2-2/7	Turning up on 13 Dec 1997	TECC policy & practice, Public relations	254	Launching TECC at Wrest Point 18 Apr 1998
D2	D2-2/7	Launching TECC at Wrest Point 18 Apr 1998	TECC policy & practice, Public relations	256	Attracting 200 people
D2	D2-2/7	Launching TECC at Wrest Point 18 Apr 1998	TECC policy & practice, Public relations	258	Listening to Phil Ruthven
D2	D2-2/7	Listening to Phil Ruthven	TECC objectives refinement	261	Fine tuning the TECC
D2	D2-2/7	Fine tuning the TECC	TECC objectives refinement	282	Being very responsive all the way through
D2	D2-2/9	Using common-sense	Public relations	318	Making them aware of it
D2	D2-3/15	Federal Govt. (DCITA) conducting a review of TECC	DCITA review of TECC, Regional ICT issues	450	Identifying issues faced by regional communities
D2	D2-3/16	Established BDF	EC Business development, Broadband applications	491	Promote new broadband industries
D2	D2-3/17	Having a body of learnings	Knowledge management, Information sharing with postgraduates	413	Sharing knowledge with post grads
D2	D2-3/18	Running those projects	TECC practice, Public relations	524	Creating demand
D2	D2-3/18	Creating demand	Public relations, EC business development	526	Making smarter businesses
D2	D2-3/8	Wanting development support	TECC (re)positioning	274	Raising the profile

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
D2	D2-3/8	Wanting awareness raising	TECC (re)positioning	274	Raising the profile
D2	D2-3/8	Wanting demystify function of ICT	ICT awareness raising	274	Raising the profile
D2	D2-3/8	Wanting demystify function of ICT	ICT awareness raising	311	Taking the risk out of IT
D2	D2-3/8	Wanting local case studies	ICT awareness raising, e-Business case study gathering	265	Gathering local case studies
D2	D2-3/8	Gathering local case studies	ICT awareness raising, e-Business case study gathering	269	Realising it was actually possible
D2	D2-3/8	Realising it was actually possible	ICT awareness raising, e-Business case study gathering	274	Raising the profile
D2	D2-3/8	Raising the profile	ICT awareness raising	278	Firms applying for funds in rounds
D2	D2-3/8	Trying to produce successful projects to showcase Tas.	Promotion of Tas ICT Ind	294	Firms applying for funds in rounds
D2	D2-3/8	Not being interested in ICT projects to showcase ICT	Promotion of Tas ICT Ind	292	Getting good idea of where people are at
D2	D2-3/8	Firms applying for funds in rounds	EC business development	284	Getting good idea of where people are at
D2	D2-3/8	Firms applying for funds in rounds	EC business development	297 X	(not) Being susceptible to being overtaken
D2	D2-3/8	Firms applying for funds in rounds	EC business development, Position in global marketplace	296	Surviving in the global marketplace
D2	D2-3/8	Not being able to trade electronically	Position in global marketplace	302 X	Surviving in the global marketplace
D2	D2-4/19	Being autonomous	TECC governance structure	408	Having a board
D2	D2-4/19	Being autonomous	TECC governance structure, Sources of TECC funding	409	Receiving funding from private sector, State & Federal Govt.
D2	D2-4/19	Having a board	TECC governance structure	410	Being a bridge to deliver Govt. programs
D2	D2-4/19	Funding from private sector, Tas & Fed Govt	TECC governance structure, Sources of TECC funding	410	Being a bridge to deliver Govt. programs
D2	D2-4/19	Being a bridge to deliver Govt. programs	TECC (non)objectives	412	Retaining IP for additional projects
D2	D2-4/19	Being a bridge to deliver Govt. programs	TECC (non)objectives	415	Getting activity going
D2	D2-4/19	Being a bridge to deliver Govt. programs	TECC (non)objectives, Knowledge management	416	Capturing learnings
D2	D2-4/19	Capturing learnings	Knowledge management, Product development	416	Developing new products
D2	D2-4/19	Developing new products	Product development, EC business development	417	Assisting business through next stage
D2	D2-4/19	Assisting business through next stage	EC business development, Relationship with ICT Ind	417	Being a partner
D2	D2-4/19	Assisting business through next stage	EC business development, Relationship with ICT Ind	418	Shaping policy
D2	D2-4/19	Assisting business through next stage	EC business development, Relationship with Tas & Fed Governments	418	Designing programs for State & Federal Govts.
D2	D2-4/19	Assisting business through next stage	TECC (non)objectives	419 X	(not) Seeing ourselves as funding body
D2	D2-4/20	The way things were going	TECC policy & practice (refocussing), EC business development	530	Moving out of funding individual projects
D2	D2-4/20	The way things were going	TECC policy & practice (refocussing), Tas ICT infrastructure	531	Getting into infrastructure
D2	D2-4/20	Moving out of funding individual projects	TECC policy & practice (refocussing), TECC success assessment	531	Thinking that's been good for the State

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
D2	D2-4/20	Getting into infrastructure	TECC policy & practice (refocussing), Tas ICT infrastructure	531	Thinking that's been good for the State
D2	D2-4/20	Getting into infrastructure	TECC policy & practice (refocussing), Tas ICT infrastructure	521 X	(not) Leading people to where they can't carry it out
D2	D2-4/20	Getting into infrastructure	TECC policy & practice (refocussing), Tas ICT infrastructure	536	Rolling out TasCOLT
D2	D2-4/20	Rolling out TasCOLT	TasCOLT policy & practice	536	Taking risk again
E	E-1/1	Introducing Networking the Nation fund	Funding for establishment of TECC	4	Making available a big bucket of money
E	E-1/1	Introducing Networking the Nation fund	Developing TECC proposal	8	Looking to develop a business case or proposal
E	E-1/1	Making available a big bucket of money	Funding for establishment of TECC	8-9	Conceiving the idea of the TECC
E	E-1/1	Looking to develop a business case or proposal	Developing TECC proposal	7	Conceiving the idea of the TECC
E	E-1/1	Conceiving the idea of the TECC	Developing TECC proposal	14	Developing the TECC proposal
E	E-1/1	Recognising need to do something by the Tas Govt	Developing TECC proposal	9-10	Developing the TECC proposal
E	E-1/1	Recognising need for Tas businesses to get on board with IT	Developing TECC proposal	12	Developing the TECC proposal
E	E-1/2	Establishing a company joint owned by UTas & Tas Govt	TECC establishment and governance	22-3	Appointing a Board
E	E-1/2	Appointing a Board	TECC governance	26-8	Having representation of key stakeholders
E	E-1/2	Appointing a Board	TECC governance	34	Interviewing & appointing John McCann as CEO
E	E-1/2	Appointing a Board	TECC governance	37	Appointing Jan Lynch as Executive Officer
E	E-1/3	Developing original proposal business case	Developing TECC proposal	43	Determining the agreement for funding
E	E-1/3	Determining the agreement for funding	TECC governance, TECC funding	45	Having reporting indicators
E	E-1/3	Determining the agreement for funding	TECC governance, TECC funding	46	Having to report against indicators on a regular basis
E	E-1/3	Determining the agreement for funding	TECC governance, TECC policy	--->	Developing a general scope
E	E-1/3	Determining the agreement for funding	TECC governance, TECC funding	--->	Forming the basis of the organisation structure
E	E-1/3	Having reporting indicators	TECC governance, TECC policy	53	Recognising the need for direction of greater benefit
E	E-1/3	Having to report against indicators on a regular basis	TECC governance	53	Recognising the need for direction of greater benefit
E	E-1/3	Recognising need for direction of greater benefit	TECC governance, TECC project funding	54-5	Needing to set aside funds for particular projects
E	E-1/3	Recognising need for direction of greater benefit	TECC governance, TECC policy	55	Develop criteria for those project funding
E	E-1/3	Recognising need for direction of greater benefit	e-Business awareness raising	56	Raising awareness of EC amongst business community
E	E-1/3	Having low degree of awareness of EC & Internet by business	e-Business awareness raising	57-8	Raising awareness of EC amongst business community
E	E-1/3	Needing to set aside funds for particular projects	TECC governance, TECC policy, TECC project funding	58-9	Developing a general scope
E	E-1/3	Develop criteria for those project funding	TECC governance, TECC policy, TECC project funding	58-9	Developing a general scope
E	E-1/3	Raising awareness of EC amongst business cmty	TECC policy, e-Business awareness raising	58-9	Developing a general scope
E	E-1/3	Developing a general scope	e-Business awareness raising	59	Recognising a need for a business pack

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
E	E-1/3	Recognising a need for a business pack	TECC governance, TECC policy, e-Business awareness raising	60	Forming the basis of the organisation structure
E	E-2/4	Not able to change business practices quickly	e-Business awareness raising	65	Recognising need for education process, based on evidence
E	E-2/4	Developing business cases by PhD students	TECC-Uni relationship, e-Business awareness raising, e-Business case study gathering	68-70	Demonstrating what could be achieved
E	E-2/4	Funding projects to kick start businesses	EC Business development	75	Be doing things a bit more quickly
E	E-2/4	Recognition that uptake was slower in Tas	e-Business awareness raising, Product development	--->	Recognition of the need to help businesses to see benefits
E	E-2/4	Recognising need for education process, based on evidence	e-Business awareness raising, Product development	90-7	Developing EC Aware booklet
E	E-2/4	Demonstrating what could be achieved	e-Business awareness raising, Product development	90-7	Developing EC Aware booklet
E	E-2/4	Be doing things a bit more quickly	e-Business awareness raising, Product development	90-7	Developing EC Aware booklet
E	E-2/4	Recognition of the need to help bus. to see benefits	e-Business awareness raising, Product development	90-7	Developing EC Aware booklet
E	E-2/4	Developing EC Aware booklet	e-Business awareness raising, Product development	98	Sowing seeds in their minds
E	E-2/4	Using examples of global EC, like Wigston Lures	e-Business awareness raising, e-Business case study	101	Sowing seeds in their minds
E	E-2/4	Conducting regional presentations	e-Business awareness raising	105-6	Sowing seeds in their minds
E	E-2/4	Sowing seeds in their minds	e-Business awareness raising	120-1	Helping to get an appreciation of what it meant to their business in Tasmania
E	E-2/4	Helping to get appreciation of what it meant to their business in Tas	e-Business awareness raising	132-6	Raising awareness of website construction
E	E-2/4	Helping to get appreciation of what it meant to their business in Tas	e-Business awareness raising	144-7	Making online transactions by CC feasible & secure
E	E-2/4	Helping to get appreciation of what it meant to their business in Tas	e-Business awareness raising	138	Raising awareness of global EC trading
E	E-2/4	Raising awareness of website construction	e-Business awareness raising	--->	Recognising the costs & risks of going to online trading
E	E-2/4	Raising awareness of website construction	e-Business awareness raising	--->	Making potential of online trading more realistic
E	E-2/4	Making online transactions by CC feasible & secure	e-Business awareness raising	--->	Recognising the costs & risks of going to online trading
E	E-2/4	Making online transactions by CC feasible & secure	e-Business awareness raising	--->	Making potential of online trading more realistic
E	E-2/4	Raising awareness of global EC trading	e-Business awareness raising	--->	Recognising the costs & risks of going to online trading
E	E-2/4	Raising awareness of global EC trading	e-Business awareness raising	--->	Making potential of online trading more realistic
E	E-2/5	Establishing IT Ind Council by State Government	Tas Govt ICT Policy & Practice, Relationship with ICT Ind	177	Bringing IT Ind together

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
E	E-2/5	Establishing IT Ind Council by State Government	TECC Relationship with ICT Ind	178	Working with TECC
E	E-2/5	Working with TECC	TECC Relationship with ICT Ind, developing local ICT Ind demand	179	Drumming up business for IT Ind by TECC
E	E-2/5	Drumming up business for IT Ind by TECC	e-Business awareness raising, developing local ICT Ind demand	181	Raising awareness of EC
E	E-2/5	Drumming up business for IT Ind by TECC	e-Business awareness raising	181	Creating a degree of interest & excitement
E	E-2/5	Drumming up business for IT Ind by TECC	TECC (non)objectives	X	Providing a consulting service
E	E-2/5	Drumming up business for IT Ind by TECC	e-Business awareness raising, developing local ICT Ind demand	183	Directing businesses to their IT consultants
E	E-2/5	Raising awareness of EC	e-Business awareness raising	203-4	Encouraging business to consider EC for profit or efficiency
E	E-2/5	Raising awareness of EC	e-Business awareness raising	203	Encouraging businesses to think about what this meant to their business
E	E-2/5	Raising awareness of EC	Developing local ICT Ind demand	180	Perceiving TECC program as a benefit by providers
E	E-2/5	Creating a degree of interest & excitement	Developing local ICT Ind demand	180	Perceiving TECC program as a benefit by providers
E	E-2/5	Directing businesses to their IT consultants	Developing local ICT Ind demand	192-4	Needing to determine services required by businesses
E	E-2/5	Directing businesses to their IT consultants	Developing local ICT Ind demand	184	Generating business for IT consultants
E	E-2/5	Generating business for IT consultants	Developing local ICT Ind demand	185	Generating new business for TECC
E	E-2/5	Generating business for IT consultants	Developing local ICT Ind demand	185	Being well received by ICT Ind
E	E-2/5	Being independent TECC	e-Business awareness raising, developing local ICT Ind demand	--->	Encouraging business to consider EC for profit or efficiency
E	E-2/5	Being independent TECC	e-Business awareness raising, developing local ICT Ind demand	--->	Encouraging businesses to think about what this meant to their business
E	E-2/5	Being independent TECC	e-Business awareness raising, developing local ICT Ind demand	--->	Bringing attention to the way the world's going
E	E-3/10	Having offices in Hobart, Launceston & Burnie	State -wide presence, location	270-7	Having a State-wide presence
E	E-3/11	Appointing a small business advisor	TECC policy & practice, e-Business awareness raising	284	Handling specific small business queries
E	E-3/11	Appointing a small business advisor	e-Business awareness raising, developing local ICT Ind demand	290-1	Directing small business to IT consultants
E	E-3/11	Appointing a small business advisor	e-Business awareness raising, developing local ICT Ind demand	299	Small business having more knowledge when approaching an IT consultant
E	E-3/11	Small business having more knowledge when approaching IT consultants	e-Business awareness raising	301	Being able to ask the right questions
E	E-3/12	Being main Ind sector	TECC policy & practice, sector development	309	Specialising in primary & associated industries
E	E-3/13	Needing to put business' own money in	Funding of e-Business projects, accelerating EC uptake	332	Recognising that it would have been longer before businesses took up EC
E	E-3/13	Having other high priorities by business	Funding of e-Business projects, accelerating EC uptake	332	Recognising that it would have been longer before businesses took up EC

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
E	E-3/13	Recognising that it would have been longer before businesses took up EC	Funding of e-Business projects, accelerating EC uptake	329-31	Seeking BDF funding
E	E-3/13	Recognising that it would have been longer before businesses took up EC	Funding of e-Business projects, accelerating EC uptake	338	Needed to have BDF to kick start business
E	E-3/13	Needed to have BDF to kick start business	Funding of e-Business projects, accelerating EC uptake	339	Creating a flow on effect in business
E	E-3/13	Needed to have BDF to kick start business	Funding of e-Business projects, accelerating EC uptake	338	Seeking BDF funding
E	E-3/13	Seeking BDF funding	Need for and funding establishment of BDF	--->	Establishing BDF program
E	E-3/13	Establishing BDF program	BDF objective - producing business plans	256	Forcing business to think about their business plans
E	E-3/13	Forcing business to think about their business plans	BDF objective - producing business plans	384-5	Developing new skills in business planning
E	E-3/13	Forcing business to think about their business plans	BDF objective - producing business plans	356-65	Creating benefits for business despite funding outcomes
E	E-3/6	Not being in Melbourne / Sydney	e-Business awareness raising	225	Lacking awareness of website advertising
E	E-3/7	Locating TECC head office in Launceston	TECC - B-eLab - LDDF relationship, location	257-9	Establishing B-eLab & LDDF in Launceston
E	E-3/8	Locating the DED Secretariat in Hobart	IT Ind Council, Tas Govt relationship, location	260	Basing IT Ind Council in Hobart
E	E-3/9	Keeping John McCann's finger on the pulse	TECC (non)objectives	264 X	(not) Delivering the same the same thing
E	E-3/9	Keeping John McCann's finger on the pulse	TECC (non)objectives	265 X	(not) Reinventing the wheel
E	E-4/14	Provision of moderate level of funding	Limitation of TECC funding	403-13	Limiting extent of marketing possible
E	E-4/14	Provision of moderate level of funding	Limitation of TECC funding , TECC policy	425-7	Focussing on doing things not flag waving
E	E-4/14	Limiting extent of marketing possible	Lack of awareness of TECC role in e-Business awareness raising	410-3	Lacking awareness of TECC in wider community
E	E-4/15	Being successful in funding round	Validation of TECC policies and practice	475	Receiving second round of funding
E	E-4/16	Working with State & Federal Governments	Stakeholder feedback	494-7	Having the keep politicians & funding agencies informed
E	E-4/17	Engaging student in research	TECC-Uni relationship, e-Business case study gathering	515	Developing case studies
E	E-4/18	Lacking commitment from UTas	TECC-Uni relationship, lack of involvement / understanding of potential	519-27	Partners having a low interest in TECC
E	E-4/18	Lacking commitment from State Government	TECC-State Govt relationship, lack of involvement / understanding of potential	528-43	Partners having a low interest in TECC
E	E-4/18	Lacking broader range of key drivers in Tas cmty	Lack of EC drivers in Tas	--->	Lack of adoption of strategic vision for TECC
E	E-4/18	Partners having a low interest in TECC	TECC-Uni-State Govt relationship, lack of involvement	--->	Lack of adoption of strategic vision for TECC
E	E-4/19	Having small core of enthusiasts	Limitation of TECC funding	614-6	Not making a big ripple
E	E-4/20	Lacking intellectual buy-in by UTas	TECC-Uni relationship, lack of involvement / understanding of potential	621-2	Lacking understanding of potential of TECC by University
E	E-4/20	Lacking broader connection to UTas departments	TECC-Uni relationship, lack of involvement / understanding of potential	626-7	Lacking understanding of potential of TECC by University

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
E	E-4/21	Lacking clever IT people	Lack of EC drivers and IT expertise in Tas	648	Lacking development of IT cluster in Tasmania
E	E-4/21	Lacking local demand for IT skills	Lack of EC drivers in Tas	649	Lacking development of IT cluster in Tasmania
F	F-1/1	Considerable investment in IT over 1977-1993	Tas Govt approach to ICT development	10	Necessitated a Whole of Govt approach to ICT
F	F-1/1	Not being well coordinated in ICT at Whole of Govt level	Tas Govt approach to ICT development	10	Necessitated a Whole of Govt approach to ICT
F	F-1/1	Increasing use of Internet	Tas Govt approach to ICT development, WoG drivers	11	Necessitated a Whole of Govt approach to ICT
F	F-1/1	Increasing need to network Govt agencies	Tas Govt approach to ICT development, WoG drivers	11	Necessitated a Whole of Govt approach to ICT
F	F-1/1	Necessitated a Whole of Govt approach to ICT	Tas Govt approach to ICT development, Policy formulation	12	Established IRM taskforce to formulate WoG directions for ICT
F	F-1/1	Necessitated a Whole of Govt approach to ICT	Tas Govt approach to ICT development, Policy formulation	24-May	Most States establishing WoG IT directions
F	F-1/1	Need to establish commonality of standards, methodology & practice in IT mangt across agencies	Tas Govt approach to ICT development, Policy formulation	17-8	Established IRM taskforce to formulate WoG directions for ICT
F	F-1/1	OGIT established by Fed Govt	Fed Govt establishment of ICT agencies and policy formulation	24-5	Most States establishing WoG IT directions
F	F-1/1	OGIT established by Fed Govt	Fed Govt establishment of ICT agencies and policy formulation	22	GICT guidelines publication
F	F-1/2	Co-location of IT policy setting & acquisitions in Treasury agencies	Tas Govt ICT policy and service delivery	32	Having a conflict of interest
F	F-1/2	Co-location of IT policy setting & acquisitions in Treasury agencies	Tas Govt ICT policy and service delivery	33	Undermining of authority of Treasury in IT policy setting
F	F-1/2	Having a conflict of interest	Tas Govt ICT policy and service delivery	33-4	Need to separate IT policy setting from IT service delivery
F	F-1/2	Undermining of authority of Treasury in IT policy setting	Tas Govt ICT policy and service delivery	33-4	Need to separate IT policy setting from IT service delivery
F	F-1/2	Need to separate IT policy setting from IT service delivery	Tas Govt ICT policy and service delivery	34	Establishment of Info Strategy Unit in P&C (policy)
F	F-1/2	Need to separate IT policy setting from IT service delivery	Tas Govt ICT policy and service delivery, demarcation	35	Monitoring of IT contracting in Treasury
F	F-1/2	Establishment of Info Strategy Unit in P&C (policy)	Tas Govt ICT policy and service delivery, project management	44	Leap-frogged other States in IT policy, service delivery &project management
F	F-1/2	Existing strong policy focus in P&C	Tas Govt ICT policy and service delivery, project management	46-7	Leap-frogged other States in IT policy, service delivery &project management
F	F-1/2	Starting after other States in WoG IT policy setting	Tas Govt ICT policy and service delivery, project management	45	Leap-frogged other States in IT policy, service delivery &project management
F	F-1/2	Recognition of risk inherent in large IT projects	Tas Govt ICT policy and service delivery, project management	39	Establishment of CIPU in P&C

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
F	F-1/2	Establishment of CIPU in P&C	Tas Govt ICT policy and service delivery, project management	40-1	Production of policy & guidelines on Project Management
F	F-1/2	Production of policy & guidelines on Project Management	Tas Govt ICT policy and service delivery, project management	42	Leap-frogged other States in IT policy, service delivery &project management
F	F-2/3	Seeking other regional IT development models	Tas Govt ICT policy direction, learning from other regions, Identification of potential development model	49	Identification of New Brunswick as candidate
F	F-2/3	Seeking other regional IT development models	Tas Govt ICT policy direction, learning from other regions	69	Taking several trips by Ministers to Ireland, etc
F	F-2/3	Recognising Tas IT Ind needed to be distance independent of markets	Tas Govt ICT policy direction, learning from other regions	53	Focus on establishing call centres
F	F-2/3	Recognising Tas IT Ind needed to be distance independent of markets	Tas Govt ICT policy direction, learning from other regions	69	Taking several trips by Ministers to Ireland, etc
F	F-2/3	Taking several trips by Ministers to Ireland, etc	Tas Govt ICT policy direction, learning from other regions	--->	Leap Tasmania ahead of other regions
F	F-2/3	Identification of New Brunswick as candidate	Identification of potential development model, Seeking partnerships	65	Courting Nortel as potential partner
F	F-2/3	Identification of New Brunswick as candidate	Adoption of New Brunswick model	53	Focus on establishing call centres
F	F-2/3	Need to establish quick wins	Adoption of New Brunswick model	53	Focus on establishing call centres
F	F-2/3	Focus on establishing call centres	Adoption of New Brunswick model	56	Establishing call centres in Kingston, Glenorchy, Ltn, Burnie, & Devonport
F	F-2/3	Re-use of old buildings	Adoption of New Brunswick model, Infrastructure requirements	59-60	Establishing call centres in Kingston, Glenorchy, Ltn, Burnie, & Devonport
F	F-2/3	Need for regional equity policies	Adoption of New Brunswick model, Regional policies	55	Establishing call centres in Kingston, Glenorchy, Ltn, Burnie, & Devonport
F	F-2/3	Requiring relatively low skill base	Adoption of New Brunswick model, Skill requirements	60-1	Establishing call centres in Kingston, Glenorchy, Ltn, Burnie, & Devonport
F	F-2/3	Re-use of old buildings	Adoption of New Brunswick model, Infrastructure requirements	62	Seen as first round of IT investment
F	F-2/3	Requiring relatively low skill base	Adoption of New Brunswick model, Skill requirements	62	Seen as first round of IT investment
F	F-2/3	Requiring relatively low skill base	Adoption of New Brunswick model, Skill requirements	60	Recognition of low knowledge capital investments
F	F-2/3	Requiring relatively low skill base	Adoption of New Brunswick model, Risk assessment	81-2	Could be relocated at whim of Telcos
F	F-2/3	Recognition of low knowledge capital investments	Adoption of New Brunswick model, Skill requirements	62	Seen as first round of IT investment
F	F-3/4	Recognition of alignment with Tas Govt IT policy directions	State Govt - UTas partnership - Development of TECC proposal	77	Development of TECC proposal in IS group
F	F-3/4	Recognition of need to roll out skills & awareness programs to Ind	State Govt - UTas partnership - Development of TECC proposal	77-8	Development of TECC proposal in IS group

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
F	F-3/4	Engagement of Peter Nixon to develop white paper on future economic directions for Tas	Catalyst for development of TECC proposal	73	Invitation for UTas to submit to this inquiry
F	F-3/4	Need to engage with Ind	TECC objectives	78	Development of TECC proposal in IS group
F	F-3/4	Need to establish infrastructure for 2nd tier IT investment	TECC objectives	79	Development of TECC proposal in IS group
F	F-3/4	Invitation for UTas to submit to this inquiry	State Govt - UTas partnership - Development of TECC proposal	76	Development of TECC proposal in IS group
F	F-3/4	Development of TECC proposal in IS group	Development of TECC proposal and budget	108	Development of a firm proposal with $4.5m budget
F	F-3/4	Development of TECC proposal in IS group	Presentation of TECC proposal and budget	--->	Presentation of TECC proposal as 1 of 4 to this group
F	F-3/4	Existence of Towards 2010 reference group	Presentation of TECC proposal and budget	92,101	Presentation of TECC proposal as 1 of 4 to this group
F	F-3/4	Continuing collaboration with Dept of P&C	Development of TECC proposal and budget	103	Development of a firm proposal with $4.5m budget
F	F-3/4	Creation of the Networking the Nation [RTIF?] fund	Development of TECC proposal and budget	108	Development of a firm proposal with $4.5m budget
F	F-3/4	Presentation of TECC proposal as 1 of 4 to this group	Presentation of TECC proposal and budget (Negative response)	102-3	Being given a very solid thumbs down: ranked 4 of 4
F	F-3/4	Presentation of TECC proposal as 1 of 4 to this group	Presentation of TECC proposal and budget (Negative response)	102	Seeing little merit in proposal
F	F-3/4	Seeing little merit in proposal	Presentation of TECC proposal and budget (Negative response)	103	Being given a very solid thumbs down: ranked 4 of 4
F	F-3/4	Development of a firm proposal with $4.5m budget	State Govt - UTas partnership -Support of TECC proposal	--->	An agreement between UTas & Tas Govt to back proposal
F	F-3/4	An agreement between UTas & Tas Govt to back proposal	State Govt - UTas partnership - NTN funding	112	Fast tracking the proposal through the NTN process
F	F-3/4	Strong lobbying by Tas Govt	State Govt - UTas partnership - NTN funding	114	Fast tracking the proposal through the NTN process
F	F-3/4	Fast tracking the proposal through the NTN process	State Govt - UTas partnership - NTN funding	119	Approval of funding from NTN in late 1996
F	F-3/4	Approval of funding from NTN in late 1996	Stakeholder support for TECC proposal	148-9	Obtaining support from TCCI
F	F-3/4	Approval of funding from NTN in late 1996	TECC establishment and governance	121	Establishment of Steering Committee chaired by Dean of Business
F	F-3/4	Establishment of Steering Committee chaired by Dean of Business	State Govt - UTas partnership, TECC establishment and governance	179-80	Establishment of TECC as a NFP Co. with Tas Govt & UTas as stakeholders
F	F-3/4	Establishment of TECC as a NFP Co. with Tas Govt & UTas as stakeholders	TECC establishment and governance	181	Appointment of Board with Rod Scott as Chair
F	F-3/4	Establishment of TECC as a NFP Co. with Tas Govt & UTas as stakeholders	TECC establishment and governance	191	Appointment of John McCann as CEO in 1997
F	F-4/5	Recognition of need to deliver value to the regional economy	TECC policy & practice	140	Use of similar models of ECCs & Business Development Centres in UK

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
F	F-4/5	Recognition of need to deliver value to the regional economy	TECC policy & practice	143-4	Desire for TECC to work closely with Tas Ind as small business advisory / enabling unit
F	F-4/5	Recognition of need to deliver value to the regional economy	TECC policy & practice, SME focus	444	Headquartering TECC in Launceston
F	F-4/5	Recognition of need to deliver value to the regional economy	TECC policy & practice, attraction of new industries	449	TECC providing IT infrastructure, leading to possible uptake & Ind development
F	F-4/5	Use of similar models of ECCs & Business Development Centres in UK	TECC policy & practice, Implementation of established models	143-4	Desire for TECC to work closely with Tas Ind as small business advisory / enabling unit
F	F-4/5	Headquartering TECC in Launceston	TECC policy & practice, SME focus	444	Having greater focus on SMEs, not public sector
F	F-4/6	Strategic & policy vision in P&C	State Govt ICT policy direction	155	Publishing of Directions Statement by Tas Govt in 1997
F	F-4/6	Desire for building social capital	State Govt ICT policy direction	158	Publishing of Directions Statement by Tas Govt in 1997
F	F-4/6	Publishing of Directions Statement by Tas Govt in 1997	State Govt ICT policy direction	159	Strategy of computers in schools
F	F-4/6	Publishing of Directions Statement by Tas Govt in 1997	State Govt ICT policy direction	171	Need to develop new directions in IT
F	F-4/6	Loss of Rundle Govt in 1998	State Govt ICT policy - change of focus	171	Need to develop new directions in IT
F	F-4/6	Loss of Rundle Govt in 1998	State Govt ICT policy - loss of personnel and focus	174	Loss of staff & policy focus from P&C
F	F-4/6	Strategy of computers in schools	State Govt ICT policy direction	160	Bringing ratio of student:PC to 6:1
F	F-4/6	Strategy of computers in schools	State Govt ICT policy direction	162	IT up-skilling of teachers
F	F-4/8	Development of businesses initiatives by TECC	TECC development of initiatives, TECC partnerships	235	Establishment of TBO with ARIBA & other partners
F	F-4/8	Establishment of TBO with ARIBA & other partners	TECC development of initiatives, TECC partnerships, Lack of success	241	Lack of successful outcomes in terms of uptake by business
F	F-4/8	Lack of successful outcomes in terms of uptake by business	TECC development of initiatives, TECC partnerships, Lack of success	--->	Loss of partner
F	F-4/9	Provision of support to TECC in PostGrad student, UnderGrad projects, etc	TECC-Uni relationship, Knowledge acquisition and management	--->	Sharing of knowledge of EC uptake between TECC & School of IS
F	F-4/9	Provision of support to TECC in PostGrad student, UnderGrad projects, etc	TECC-Uni relationship, Knowledge acquisition and management	302-3	Identification of TECC by School of IS as a portal to SMEs
F	F-4/9	Awareness that outcomes are of little immediate interest to business	TECC-Uni relationship, Knowledge acquisition and management	295	Identification of TECC by School of IS as a portal to SMEs
F	F-4/9	Recognition that Uni research timeframe was not compatible with Ind	TECC-Uni relationship, Knowledge acquisition and management	297	Identification of TECC by School of IS as a portal to SMEs
F	F-4/9	Identification of TECC by School of IS as a portal to SMEs	TECC-Uni relationship, Knowledge acquisition and management	301	Sharing of knowledge of EC uptake between TECC & School of IS
F	F-4/9	Identification of TECC by School of IS as a portal to SMEs	TECC-Uni relationship, Knowledge acquisition and management	--->	Technology transfer of research outcomes to Ind
F	F-4/9	Sharing of knowledge of EC uptake between TECC & School of IS	TECC-Uni relationship, Knowledge acquisition and management	304	Consolidation of these learnings in research programs

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
F	F-4/9	Consolidation of these learnings in research programs	TECC-Uni relationship, Knowledge acquisition and management	--->	Long term feedback to TECC
F	F-4/9	Long term feedback to TECC	TECC-Uni relationship, Knowledge acquisition and management	--->	Technology transfer of research outcomes to Ind
F	F-5/7	Development of 4 level strategy by TECC	TECC policy & practice, EC business development	--->	Development of 4th level
F	F-5/7	Development of 4 level strategy by TECC	TECC policy & practice, EC business development	--->	Development of EC Enable
F	F-5/7	Development of 4 level strategy by TECC	TECC policy & practice, EC business development	--->	Development of EC Ready
F	F-5/7	Development of 4 level strategy by TECC	TECC policy & practice, EC business development	199	Development of EC Aware
F	F-5/7	Development of EC Enable	TECC policy & practice, EC business development	--->	Working with companies to deliver realistic solutions
F	F-5/7	Development of EC Ready	TECC policy & practice, EC business development, Project funding	--->	Running a grant program of $20k for businesses & $100k for industries
F	F-5/7	Development of EC Ready	TECC policy & practice, EC business development, Knowledge acquisition	212	Writing of case studies & promotional material
F	F-5/7	Development of EC Aware	TECC policy & practice, EC business development, e-Business awareness raising	204-10	Conduct of awareness raising seminars – mainly at Ind group level by J.L.
F	F-5/7	Running a grant program of $20k for businesses & $100k for industries	EC business development, Project funding management	225	Perceived lack of management of outcomes
F	F-5/7	Perceived lack of management of outcomes	EC business development, Project funding management	226	Non-realisation of goals of many funding projects
F	F-5/7	Non-realisation of goals of many funding projects	EC business development, Project funding management	246	Lack of EC demonstration projects
F	F-5/7	Lack of EC demonstration projects	EC business development, Project funding management	--->	Perception of EC as high risk by SMEs
F	F-5/7	Lack of EC demonstration projects	EC business development, Knowledge acquisition and management	268	Lack of learnings coming out of TECC
F	F-5/7	Tendency of TECC to lock up IP	TECC policy & practice, Knowledge acquisition and management	265	Lack of learnings coming out of TECC
F	F-5/7	Lack of recognition of drivers of change in supply chains	TECC policy & practice, Knowledge acquisition and management	268-9	Lack of learnings coming out of TECC
F	F-5/7	Focus of SMEs on cash flows	e-Business awareness, Knowledge acquisition and management	253	Perception of EC as high risk by SMEs
F	F-5/7	Lack of smart systems: content management; EFTPOS gateways	e-Business awareness, Knowledge acquisition and management	261	Perception of EC as high risk by SMEs
F	F-5/7	Lack of learnings coming out of TECC	e-Business awareness, Knowledge acquisition and management	276	Lack of knowledge transfer to Ind
F	F-5/7	Lack of learnings coming out of TECC	e-Business awareness, Knowledge acquisition and management	258	Inhibiting move to next tier of IT investment
F	F-5/7	Prematurity of program in Tas Ind	e-Business awareness, Knowledge acquisition and management	276	Lack of knowledge transfer to Ind

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
F	F-5/7	Lack of comparable models in Aust Ind	TECC policy & practice, Knowledge acquisition and management	281-2	Lack of knowledge transfer to Ind
F	F-5/7	Lack of engagement of shareholders in TECC	Stakeholder support, Knowledge acquisition and management	284	Lack of knowledge transfer to Ind
F	F-6/25	By 2000 focus had moved from TECC to IIB	Changing focus on development delivery	332	IIB major focus Tas ICT Ind development
F	F-6/10	TECC - UTas partnership	Knowledge acquisition and management	--->	Development of unsuccessful bid with TECC & Ericsson & IIB
F	F-6/10	TECC - UTas partnership	Knowledge acquisition and management	341 X	Became adjunct to School research program
F	F-6/10	TECC - UTas partnership	Knowledge acquisition and management	356	Cross-promotion of TECC by / for School of IS
F	F-6/10	TECC - UTas partnership	Knowledge acquisition and management	309	Engagement of researchers with Ind on a day-by-day basis
F	F-6/10	TECC - UTas partnership	Knowledge acquisition and management	309	Being able to offer immediate benefits through TECC
F	F-6/10	TECC - UTas partnership	Knowledge acquisition and management	311	Establishment of LDDF as knowledge sharing platform in Launceston
F	F-6/10	TECC - UTas partnership	Knowledge acquisition and management	314,337	Number of Honours scholarships funded through TECC
F	F-6/10	TECC - UTas partnership	Knowledge acquisition and management	327	Need to manage this portal to protect interests of all parties
F	F-6/10	TECC - UTas partnership	Knowledge acquisition and management	340	Funding of Paul Turner's position ($75k)
F	F-6/10	TECC - UTas partnership	Knowledge acquisition and management	--->	Recruitment of several PhD students
F	F-6/10	TECC - UTas partnership	Knowledge acquisition and management	348 X	Funding of PostGrad research
F	F-6/10	Development of unsuccessful bid with TECC & Ericsson & IIB	TECC partnerships proposal, investment attraction - long-term	--->	Lack of recognition of value each party could bring one another
F	F-6/10	Lack of recognition of value each party could bring one another	TECC partnerships proposal, investment attraction - short-term	--->	TECC focussed on immediate / short term knowledge gathering
F	F-6/10	TECC focussed on immediate / short term knowledge gathering	TECC-Uni relationship, Knowledge acquisition and management	371 X	Became adjunct to School research program
F	F-6/10	Engagement of researchers with Ind on a day-by-day basis	TECC-Uni relationship, Knowledge acquisition and management	351-2	Provision of useful knowledge to TECC staff
F	F-6/11	Funding of TECC of $4.5m over 3 years	Fed Govt commitment to TECC	389	Establishing a long term funding timetable
F	F-6/12	Obtained PhD funding from Telstra & ARC Linkage grant	TECC-Uni relationship, Knowledge acquisition & management, Ind engagement	397 X	Consulting with TECC on joint funding / sponsorship
F	F-6/13	Lack of communication of strategic directions from Uni to TECC	TECC-Uni relationship - communications	403	Inhibiting long term goals being established
F	F-6/14	Funding by IIB of skills & investment attraction programs	TECC - IIB partnership programs	429 X	Use of TECC to actively deliver any of these programs
F	F-7/15	Establishing links between TECC & Logistics Ind	TECC-Uni relationship, Knowledge acquisition & management, Ind engagement	413	Recognition by School of IS of need for EC in Logistics Ind
F	F-7/15	Establishing links between TECC & Logistics Ind	TECC-Uni relationship, Knowledge acquisition & management, Ind engagement	416	Kept IS academics engaged with Ind & informed

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
F	F-7/15	Recognition by School of IS of need for EC in Logistics Ind	TECC-Uni relationship, Knowledge acquisition & management, Ind engagement	--->	1 x PhD & several x MIS projects in EC + Logistics
F	F-7/15	Recognition by School of IS of need for EC in Logistics Ind	TECC-Uni relationship, Knowledge acquisition & management, Ind engagement	--->	Establishing linkages with some Logistics providers
F	F-7/16	Establishing B-eLab in Launceston	B-eLab-BDF relationship and location	--->	Need to include broadband relevance in BDF applications
F	F-7/16	Establishing B-eLab in Launceston	B-eLab-LDDF relationship and location	459-60	Establishment of LDDF as bi-monthly forum
F	F-7/16	Headquartering TECC in Launceston	TECC-LDDF relationship and location	459-60	Establishment of LDDF as bi-monthly forum
F	F-7/16	Headquartering TECC in Launceston	TECC-BDF relationship	468	TECC administering BDF
F	F-7/16	TECC administering BDF	B-eLab-BDF relationship	470	Need to include broadband relevance in BDF applications
F	F-7/17	Establishing Launceston incubator	TECC relationship with ICT Ind	466	Engagement of TECC with a number of companies
F	F-7/17	Engagement of TECC with a number of companies	Funding of e-Business projects, accelerating EC uptake	468	Funding of some joint ventures with these companies
F	F-7/18	Establishing the TECC	Accelerating EC uptake on 'National' scale	481	Promoting the uptake of broadband in other regional areas on Australia
F	F-7/18	Promoting the uptake of broadband in other regional areas on Australia	Accelerating EC uptake on 'National' scale, Broadband infrastructure advocacy	494	TECC actively promoting the rollout of broadband in Tasmania
F	F-7/18	Promoting the uptake of broadband in other regional areas on Australia	Accelerating EC uptake on 'National' scale	481	Holding a number regional broadband development forums
F	F-7/18	NTD actively promoting rollout of broadband in Northern Tasmania	NTD Broadband infrastructure advocacy, business case development	---> X	Demonstrating a business case for broadband rollout in Tasmania
F	F-7/18	TECC actively promoting the rollout of broadband in Tasmania	TECC Broadband infrastructure advocacy, business case development	492 X	Demonstrating a business case for broadband rollout in Tasmania
F	F-7/18	Holding a number regional broadband development forums	Accelerating EC uptake, Broadband infrastructure advocacy	482	Held in Launceston
F	F-7/18	Holding a number regional broadband development forums	Accelerating EC uptake on 'National' scale, Broadband infrastructure advocacy	483	Held in Ballarat
F	F-7/18	Holding a number regional broadband development forums	Accelerating EC uptake on 'National' scale, Broadband infrastructure advocacy	483	Held in Queensland
F	F-8/19	Promoting opportunities for collaboration with TECC	TECC-UTas relationship - (No) Joint research programs	---> X	Establishment of joint research programs with other disciplines in UTas
F	F-8/19	Not having technical support from Computing	UTas / Commerce lack of funding for SoIS technical support	577	Lacking strength of technological support
F	F-8/19	Not financed by the Faculty of Commerce	UTas / Commerce lack of funding for SoIS technical support	579	Not having technical infrastructure in School of IS
F	F-8/19	Establishment of joint research programs with other disciplines in UTas	TECC-UTas relationship - (No) Joint research programs	529 X	Development of cross-disciplinary research programs
F	F-8/19	Development of cross-disciplinary research programs	TECC-UTas relationship - (No) Joint research programs	593	Not being able to capitalise on relationship with TECC

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
F	F-8/19	Not having technical infrastructure in School of IS	UTas / Commerce lack of funding for SoIS technical support	577	Lacking strength of technological support
F	F-8/19	Lacking strength of technological support	UTas / Commerce lack of funding for SoIS technical support, UTas-TECC relationship	593	Not being able to capitalise on relationship with TECC
F	F-8/19	Lacking strength of technological support	UTas / Commerce lack of funding for SoIS technical support	582-91	Inability to establish a working EC lab
F	F-8/20	Rollout of AARNet	UTas view of Tas ICT infrastructure	547	Being viewed as a waste of time by some in Uni & Antarctic Division
F	F-8/20	Establishing high capacity network in UTas	UTas view of Tas ICT infrastructure	548-53	Being viewed as a waste of time by some in Uni & Antarctic Division
F	F-8/21	Change of IT from rare to ubiquitous	ICT availability, use and acceptance - uneven	559	Lack of wider perspective by users of this technology
F	F-8/21	Change of IT from rare to ubiquitous	ICT availability, use and acceptance - uneven	558-9	Being absorbed in this IT infrastructure
F	F-8/21	Being absorbed in this IT infrastructure	ICT availability, use and acceptance - uneven	559	Lack of wider perspective by users of this technology
F	F-8/22	Being exposed to a 1st generation system	ICT availability, use and acceptance - uneven	562	Not realising what else is possible
F	F-8/22	Recognising that adoption of next generation is too much effort	ICT availability, use and acceptance - uneven	564-5	Becoming locked into a particular generation
F	F-8/22	Not realising what else is possible	ICT availability, use and acceptance - uneven	562	Controlling adoption by bureaucracy
F	F-8/22	Not realising what else is possible	ICT availability, use and acceptance - uneven	563	Becoming locked into a particular generation
F	F-8/23	Seeing structuration as the big picture for TECC	Difficulty propagating ICT infrastructure big picture	568 X	Conveyed to other people involved
F	F-8/23	Seeing structuration as the big picture for TECC	Difficulty propagating ICT infrastructure big picture	570	Feeling alone with these issues within School of IS
F	F-8/23	Having TECC funding	Non-Tas view of funding and activities (incorrect)	572	Being envied by other IS departments
F	F-8/23	Being envied by other IS departments	Non-Tas view of funding and activities (incorrect), difficulty propagating ICT infrastructure big picture	--->	Feeling alone with these issues within School of IS
F	F-8/24	Establishing School of IS in 1997	TECC-UTas relationship - (No) SoIS involvement with TECC	594	Few staff having direct involvement with TECC
F	F-8/24	Establishing TECC in 1997	TECC-UTas relationship - (No) SoIS involvement with TECC	594	Few staff having direct involvement with TECC
F	F-8/24	Lacking academics who understood transforming vision into reality	TECC-UTas relationship - (No) SoIS involvement with TECC, difficulty propagating ICT infrastructure big picture	596	Few staff having direct involvement with TECC
F	F-8/24	Lacking academics with business background	TECC-UTas relationship - (No) SoIS involvement with TECC, difficulty propagating ICT infrastructure big picture	597	Few staff having direct involvement with TECC
G	G-1/1	Perceived by Ind	UTas-Tas ICT Ind Relationship - (No) Engagement, UTas funding no benefit to Tas ICT Ind	5 X	Engaging University with Ind

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
G	G-1/1	Engaging University with Ind	UTas-Tas ICT Ind Relationship - (No) Engagement, UTas funding no benefit to Tas ICT Ind	5	Was a lot of suspicion around
G	G-1/2	Uni being funded Federally	UTas funding no benefit to Tas ICT Ind	8	Having expectation their IIB fund was for Tas. IT Ind
G	G-1/2	Having expectation their IIB fund was for Tas. IT Ind	UTas funding no benefit to Tas ICT Ind	10	Wanting to see benefits for the Ind
G	G-1/3	Jim Bacon wanting to find out what's happening in Tas.	Tas Govt ICT Ind audit	14	Conducting Ind audits
G	G-1/3	Conducting Ind audits	Tas Govt ICT Ind audit, ICT Ind approval of Audit aim / process	14-5	Being admirable & very effective
G	G-1/3	Conducting Ind audits	Tas Govt ICT Ind audit, ICT Ind approval of Audit aim / process	15	Being well regarded
G	G-1/3	Conducting Ind audits	Tas Govt ICT Ind audit - outcomes	2	Establishing Ind Councils
G	G-1/3	Being admirable & very effective	Tas Govt ICT Ind audit, ICT Ind approval of Audit aim / process	16	Everyone being very happy with it
G	G-1/3	Being admirable & very effective	Tas Govt ICT Ind audit, ICT Ind approval of Audit aim / process	--->	People being very interested & motivated
G	G-1/3	Being well regarded	Tas Govt ICT Ind audit, ICT Ind approval of Audit aim / process	--->	Everyone being very happy with it
G	G-1/3	Being well regarded	Tas Govt ICT Ind audit, ICT Ind approval of Audit aim / process	17-8	People being very interested & motivated
G	G-1/3	Establishing Ind Councils	Tas Govt ICT Ind audit - outcomes	--->	Building strategic plans based on outcomes from the audits
G	G-1/3	Establishing Ind Councils	Tas Govt ICT Ind audit - outcomes	--->	Providing advice to Govt on what was needed to be done
G	G-1/3	B. obtaining Telstra funding	IIB establishment	--->	Establishing Intelligent Island Fund
G	G-1/3	Building strategic plans based on outcomes from the audits	Tas Govt ICT Ind audit - outcomes	--->	Having money to implement IT Ind plan
G	G-1/3	Providing advice to Govt on what was needed to be done	Tas Govt ICT Ind audit - outcomes	29	Having money to implement IT Ind plan
G	G-1/3	Establishing Intelligent Island Fund	IIB establishment, Tas Govt ICT Ind audit - outcomes	--->	Having money to implement IT Ind plan
G	G-1/3	Having money to implement IT Ind plan	Funding for Tas ICT Ind plan	32	Having expectation to create initiatives consistent with Ind plan
G	G-1/3	Being appointed to IIB	Ind input to IIB, Funding for Tas ICT Ind plan	32	Having expectation to create initiatives consistent with Ind plan
G	G-1/3	Being appointed to IIB	Ind input to IIB, Funding for Tas ICT Ind plan	41	Expecting to produce initiatives through IIB, consistent with the strategic plan
G	G-1/3	Having expectation to create initiatives consistent with Ind plan	(No) IIB Awareness of Tas ICT Ind plan	34-5	Understanding that IIB did not have awareness of IT Ind plan
G	G-1/3	R. E. saying there wasn't an IT Ind plan	(No) Dpt Economic Development Awareness of Tas ICT Ind plan	--->	Understanding that IIB did not have awareness of IT Ind plan

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
G	G-1/3	Expecting to produce initiatives through IIB, consistent with the strategic plan	Ind input to IIB, Funding for Tas ICT Ind plan	41 (Exp)	Being signed off by Tas. Govt
G	G-1/3	Being signed off by Tas. Govt	Ind input to IIB, Funding for Tas ICT Ind plan	42	Being funded by IIB
G	G-1/4	Understanding that IIB money was not going to be shared across every business	IIB policy & practice	51 (exp)	IIB funds not out to be used for miniscule projects
G	G-1/4	IIB funds not out to be used for miniscule projects	IIB policy & practice, Projects of significance	--->	Use IIB funds for big ticket items
G	G-1/4	Imperative for IIB was to support significant initiatives that would produce benefits for all	IIB policy & practice, Projects of significance	51 (exp)	Use IIB funds for big ticket items
G	G-1/4	Imperative for IIB was to support significant initiatives that would produce benefits for all	IIB policy & practice, Projects of significance, Ind partnerships	53 (exp)	Going to leverage funds against investment
G	G-1/4	Use IIB funds for big ticket items	IIB policy & practice, Projects of significance	51	To get best value for money
G	G-2/27	IIB Chair having ambition to create replicable model to produce success	IIB policy & practice, Development / Investment Model replication	--->	Investment Model replication for other regions
G	G-2/10	Not being someone who will turn $40m into $1B	IIB programs outcome - No easy solutions, Need for re-think, MAPP	125	Going to plan B (MAPP)
G	G-2/10	Going to plan B (MAPP)	MAPP - smaller achievable target	129	Giving money to create $200m Ind
G	G-2/11	Having brief to improve Tas. ICT Ind	MAPP - smaller achievable targets, Benefits for Tas ICT Ind	136-7	Looking to spend $40m on big enough item to provide an outcome for everyone
G	G-2/11	Having brief to create opportunity for Tas. ICT Ind	MAPP - smaller achievable targets, Benefits for Tas ICT Ind	136-7	Looking to spend $40m on big enough item to provide an outcome for everyone
G	G-2/11	Being a lot of people in Tas. already doing stuff that was credible & valuable	MAPP - smaller achievable targets, Benefits for Tas ICT Ind	136-7	Looking to spend $40m on big enough item to provide an outcome for everyone
G	G-2/11	Being a small Ind not worth worrying about	MAPP - smaller achievable targets, Benefits for Tas ICT Ind	--->	Being overlooked in big ticket item
G	G-2/11	Being overlooked in big ticket item	MAPP - smaller achievable targets, Benefits for Tas ICT Ind	--->	Looking to spend $40m on big enough item to provide an outcome for everyone
G	G-2/11	Looking to spend $40m on big enough item to provide an outcome for everyone	IIB programs outcome - Looking for high level solutions	138	Becoming apparent there wasn't a plan B
G	G-2/11	Plan B being too much risk, too hard	IIB programs outcome - Looking for high level solutions, Risk aversion	138	Becoming apparent there wasn't a plan B
G	G-2/11	Looking to spend $40m on big enough item to provide an outcome for everyone	MAPP - smaller achievable targets, Benefits for Tas ICT Ind	--->	Seeking a 50% return, rather than a 500% return
G	G-2/5	$40m not being a big amount of money	(No) Ind partnerships	59 X	Leverage $40m to create a bigger pool & get more benefits
G	G-2/5	$40m not being a big amount of money	IIB policy & practice, Projects of significance	61	Recognising that $40m needed to be invested wisely
G	G-2/5	$40m not being a big amount of money	IIB-Incubator relationship	63	Little leveraging occurring, apart from the Incubator

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
G	G-2/6	After a couple of years a lot of money was still sitting there	(No) Ind partnerships, (No) Projects of significance	86	Creating concern amongst people about what was to happen
G	G-2/7	Being a lot of commercial imperative around	Program meeting Ind needs at State level	90	Incubator program going off
G	G-2/7	Incubator program going off	Program meeting Ind needs, (No) Leveraging of investment	91 X	Leveraging that investment
G	G-2/7	Incubator program going off	Program meeting Ind needs at National level	95	Incubator being successful at national level
G	G-2/8	Having ambition to produce a good result in 5 years	IIB programs outcome - No easy solutions	102	Becoming clear that there wasn't a button to press to produce this outcome
G	G-2/9	Not being low hanging fruit	IIB programs outcome - No easy solutions	104	There was no easy solution
G	G-2/9	Not being any latent demand for funding	IIB programs outcome - No easy solutions, No latent demand for funding	104	There was no easy solution
G	G-2/9	Not being a silver bullet to create	IIB programs outcome - No easy solutions	107	There was no easy solution
G	G-2/9	There was no easy solution	IIB programs outcome - No easy solutions	109	Stop looking for the easy thing
G	G-2/9	There was no easy solution	IIB programs outcome - No easy solutions, Looking for high level solutions	110	Start looking for the next layer
G	G-2/9	Stop looking for the easy thing	IIB programs outcome - No easy solutions, Continued looking for big ticket items	111 X	IIB kept looking for the big ticket item
G	G-2/9	Start looking for the next layer	IIB programs outcome - No easy solutions, Continued looking for big ticket items	111 X	IIB kept looking for the big ticket item
G	G-2/9	IIB kept looking for the big ticket item	IIB continued looking for big ticket items, Lack of business case for Bioinformatics Centre	114	Having trouble seeing the business case
G	G-2/9	Could see political points in IIB funding	Political point in Bioinformatics Centre, Lack of business case for Bioinformatics Centre	118 X	Having trouble seeing the business case
G	G-2/9	Having trouble seeing the business case	Lack of business case for Bioinformatics Centre	116	Being concerned about lack of business case
G	G-2/9	Not having experience in large strategic initiatives	Lack of business case for Bioinformatics Centre	116	Being concerned about lack of business case
G	G-2/9	Having trouble seeing the business case	Lack of business case for Bioinformatics Centre, Need for re-think	--->	Feeling need to go back to basics
G	G-2/9	Seeing greater risk in IIB funding than commercial operation	Lack of business case for Bioinformatics Centre, Need for re-think	--->	Feeling need to go back to basics
G	G-3/26	Recognition that $10m in Business Development Fund was too small for self-sustainability	Recognition of difficulty of VC funding	--->	Recognition $10m too small for VC funding
G	G-3/12	Getting comments from Tas. ICT Ind	Tas ICT Ind not seen as strategic by IIB	184	Ind not being perceived as strategic by IIB
G	G-3/12	Ind not being perceived as strategic by IIB	Tas ICT Ind not seen as strategic by IIB, Lack of IIB - Ind consultation	191	Perception that it would have been better to engage more with Ind
G	G-3/12	Perception that it would have been better to engage more with Ind	Lack of interaction between Tas Govt & Ind	194	Lack of trust of Ind in Govt
G	G-3/12	Lack of trust in Ind in Govt	Lack of interaction between Tas Govt & Ind	193	Non-attendance by Jeff Kelly & Premier at council meetings
G	G-3/13	Being good strategic thinkers on IIB	Recognition of IIB members strategic thinking	197	Probably knowing better than a lot of Ind

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
G	G-3/13	Being good strategic thinkers on IIB	Recognition of IIB members strategic thinking, Looking for sustainable investment	239	IIB Chair being keen to ensure sustainable investment
G	G-3/14	Dismissing Ind all together by IIB	Lack of IIB - Ind consultation, (No) Benefits for Tas ICT Ind	200	Impression by Ind of lack of benefit
G	G-3/14	Impression by Ind of lack of benefit	(No) Benefits for Tas ICT Ind, IIB not successful	200	Seeing IIB as not successful
G	G-3/15	Funding through MAPP project	MAPP - smaller achievable targets, Benefits for Tas ICT Ind	212	Flushing out a lot of non-traditional IT businesses, producing initiatives based on IT projects
G	G-3/15	Funding through MAPP project	Funding Tas ICT Ind projects with expecting ROI	251	Not necessarily expecting a return
G	G-3/15	Funding through MAPP project	Funding Tas ICT Ind projects with expecting ROI	235	Letting the fundees carry the risk & helping them through funding
G	G-3/15	Flushing out a lot of non-traditional IT businesses, producing initiatives based on IT projects	Tapping into 'hidden' potential of Tas ICT Ind	213	Realisation of a lot of hidden potential
G	G-3/15	Vocal IT Ind was not necessarily representative of all of the local Ind	Tapping into 'hidden' potential of Tas ICT Ind, Vocal segment of IT Ind not necessarily representative	213	Realisation of a lot of hidden potential
G	G-3/16	Saying $10 M is too small to create a VC type fund	Recognition that $10m too small for VC funding	254	Everyone canning it
G	G-3/16	Saying $10 M is too small to create a VC type fund	Recognition that $10m too small for VC funding, (No) Leveraging of investment	256	Being no attempt to leverage it
G	G-3/16	Being no attempt to leverage it	Recognition that $10m too small for VC funding, (No) Leveraging of investment	--->	Everyone canning it
G	G-3/17	Having a fear of wasting money	Risk aversion, Expecting ROI	266	Having problem of seeing it as too much of a commercial investment
G	G-3/17	Having a fear of not spending any money	Risk aversion (frozen by fear of failure), Expecting ROI	266	Having problem of seeing it as too much of a commercial investment
G	G-3/17	Having problem of seeing it as too much of a commercial investment	Expecting ROI, Missed possibilities	273	Losing five years of possibilities
G	G-3/18	Liking the MAPP program	Recognition that MAPP was a good compromise (consolation)	291	Seeing it as the right thing to do
G	G-3/18	Liking the MAPP program	Recognition that MAPP took to long to establish, Missed possibilities	291	Thinking it is unfortunate it took so long
G	G-3/18	Liking the MAPP program	Recognition that MAPP is underfunded	292	Thinking it is unfortunate there is not more money in it
G	G-3/18	Liking the MAPP program	Tapping into 'hidden' potential of Tas ICT Ind	564	Thinking that MAPP brought out a lot of vision in the Ind
G	G-3/19	Not thinking that outcomes will flow from CSIRO Centre to Tas. IT Ind	CSIRO - Tas ICT Ind relationship - lack of engagement	301	CSIRO struggling to engage with Ind
G	G-3/20	IIB Chair was principled, successful, vocal, well regarded	IIB Chairman - seen as good choice	360	Being a good selection
G	G-4/25	Not thinking NR was very diplomatic	IIB Chairman - Tas ICT Ind relationship	--->	Lacking understanding of State-related issues
G	G-4/21	NR decided Ind was a waste of time	IIB Chairman - Tas ICT Ind - lack of engagement	--->	NR not wanting to deal with Ind
G	G-4/21	NR decided Ind was a waste of time	IIB Chairman - Tas ICT Ind - lack of engagement	362	Not thinking NR engaged with Ind

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
G	G-4/21	NR decided Ind was a waste of time	IIB Chairman - Tas ICT Ind - lack of engagement	364	Asking Interviewee G for Ind input
G	G-4/21	Not thinking NR engaged with Ind	IIB Chairman - Tas ICT Ind - lack of engagement	361	NR not wanting to deal with Ind
G	G-4/21	Not thinking NR engaged with Ind	IIB Chairman - Tas ICT Ind - lack of engagement & appreciation of Tas business culture	374	NR having trouble understanding Tas. Business culture
G	G-4/21	Not thinking NR engaged with Ind	IIB Chairman - Tas ICT Ind relationship - lack of engagement	364	Asking Interviewee G for Ind input
G	G-4/21	NR having trouble understanding Tas. Business culture	IIB Chairman - Tas ICT Ind - lack of engagement & appreciation of Tas business culture	--->	Needing to work with small vocal minority
G	G-4/21	Ind containing a lot of very not very good strategic thinker, self-interested & petty politics	IIB - Tas ICT Ind - lack of engagement & appreciation of Tas business culture	400	Being nature of business in Tas.
G	G-4/21	Being nature of business in Tas.	IIB - Tas ICT Ind - lack of engagement & appreciation of Tas business culture	415	NR asking to explain such small minded approaches
G	G-4/21	Being nature of business in Tas.	IIB - Tas ICT Ind - lack of engagement & appreciation of Tas business culture	--->	Needing to work with small vocal minority
G	G-4/21	NR asking to explain such small minded approaches	IIB - Tas ICT Ind - lack of engagement & appreciation of Tas business culture	419	IIB not seeing daily imperatives of Ind
G	G-4/21	IIB tried to fit National solution	IIB - Tas ICT Ind - lack of engagement & appreciation of Tas business culture	--->	Being issues of engagement with Ind
G	G-4/21	IIB not faced reality of business which is State-bound	IIB - Tas ICT Ind - lack of engagement & appreciation of Tas business culture	--->	Being issues of engagement with Ind
G	G-4/21	Being issues of engagement with Ind	IIB - Tas ICT Ind - lack of engagement, Negative assessment of Tas IT Ind	423	IIB not thinking there was a IT Ind in Tas. Worth supporting
G	G-4/21	Being issues of engagement with Ind	IIB - Tas ICT Ind - lack of engagement & appreciation of Tas business culture	--->	IIB not seeing daily imperatives of Ind
G	G-4/21	IIB not seeing daily imperatives of Ind	IIB - Tas ICT Ind - lack of engagement, Negative assessment of Tas IT Ind	423	IIB not thinking there was a IT Ind in Tas. Worth supporting
G	G-5/22	Being an IIB member	Dual IIB & ITIC membership - lack of recognition of different roles / conflicts	438	Keeping Board matters private
G	G-5/22	Being an IIB member	Recognition of IIB more strategic than ITIC	483	Recognizing IIB was more strategic in its thinking than ITIC
G	G-5/22	Being ITIC chair	Dual IIB & ITIC membership - lack of recognition of different roles / conflicts	439 X	Keeping Board matters private
G	G-5/22	Being ITIC chair	Dual IIB & ITIC membership - lack of recognition of different roles / conflicts	--->	Expecting report back from IIB
G	G-5/22	Being ITIC chair	Dual IIB & ITIC membership - lack of recognition of different roles / conflicts	445	Required to represent interests of ITIC to the IIB
G	G-5/22	Being ITIC chair	Recognition ITIC more tactical than strategic	484	Recognizing ITIC only thought tactically
G	G-5/22	Being ITIC chair	Recognition of IIB more strategic than ITIC	483	Recognizing IIB was more strategic in its thinking than ITIC

Inter	Pg/Grp	Action	General Topic Area	Line	Consequence
G	G-5/22	Keeping Board matters private	Dual IIB & ITIC membership - lack of recognition of different roles / conflicts	442	Having problems with people who thought they were being disenfranchised
G	G-5/22	Expecting report back from IIB	Dual IIB & ITIC membership - lack of recognition of different roles / conflicts	442	Having problems with people who thought they were being disenfranchised
G	G-5/22	Expecting report back from IIB	Dual IIB & ITIC membership - lack of recognition of different roles / conflicts	449	Being lack of understanding in ITIC of IIB governance
G	G-5/22	Being lack of understanding in ITIC of IIB governance	Dual IIB & ITIC membership - lack of recognition of different roles / conflicts	454	Need to study governance questions
G	G-5/22	Required to represent interests of ITIC to the IIB	Dual IIB & ITIC membership - not feeling compromised on IIB	467	Never feeling compromised on IIB
G	G-5/22	Recognizing ITIC only thought tactically	Recognition Govt often more strategic than ITIC	490	Often Govt does know better what's best for Ind
G	G-5/22	Recognizing ITIC only thought tactically	Recognition ITIC more tactical than strategic	494	Ind not being strategic
G	G-5/22	Recognizing ITIC only thought tactically	Dual IIB & ITIC membership - lack of recognition of different roles / conflicts	485	Having issue with way people expected me to represent them
G	G-5/22	Recognizing IIB was more strategic in its thinking than ITIC	Dual IIB & ITIC membership - lack of recognition of different roles / conflicts	485	Having issue with way people expected me to represent them
G	G-5/22	Govt taking strategic view	Recognition Govt often more strategic than ITIC	490	Often Govt does know better what's best for Ind
G	G-5/22	Ind not being strategic	Recognition Govt often more strategic than ITIC	490	Often Govt does know better what's best for Ind
G	G-5/22	Often Govt does know better what's best for Ind	Recognition Govt often more strategic than ITIC	492	Not having a problem with this
G	G-5/23	Being very few Tas. Businesses who are able to go national	Recognition of risks when going National - missed opportunities to assist	521	Could have spent more time assisting people to go national
G	G-5/24	Incubator giving management expertise at higher levels	Incubator providing expertise in going National	532	Incubator producing businesses that have gone national from nothing
G	G-5/24	Incubator handling contracts & risks	Incubator providing expertise in going National	533	Incubator producing businesses that have gone national from nothing

Appendix G: Grouped Topic Areas

Row	Inte	Catalyst / Action		1st Higher Level Concepts
1	A	Inclusion of NTN money in T2 sale	<-	Fed Govt's Telstra sale strategy development
2	A	Adding more dollars [Telstra Sale amount to Tas for B.]	}	
3	A	Being accepted by Alston's office [Computers in Schools]	}	
4	A	Being informed of the Tas. Ind Audits	}	
5	A	Being politically good [OAC]	}	
6	A	Being taken seriously [B-eLab]	}	
7	A	B. being happy with paper [Int A's proposal]	}	
8	A	Contacting the office of the Tas. Premier [Sen Alston Tas ICT Ind & Telstra sale]	}	
9	A	Creating some sort of cluster of new enterprise	}	
10	A	Emerging T2 sale	}	
11	A	Federal Govt. contributing $15 m	}	
12	A	Federal Govt. Wanting to relate T2 package to ICT	}	
13	A	Give them momentum	}	
14	A	Having the intent to develop an IT Ind in Tas.	}	
15	A	Inclusion in the Ind Audit	}	
16	A	Looking for ideas	}	
17	A	Loss of support of Mal Colston	}	
18	A	Made Govt look good	}	
19	A	Needing to develop other programs	}	
20	A	Needing to see funding	}	Fed Govt's Telstra sale strategy development
21	A	Passing of second Telstra Sale legislation	}	
22	A	Present paper to Sen. Alston's office	}	
23	A	Presented paper to B. with costings	}	
24	A	Proposing to Minister that some Telstra R & D be done in Tas.	}	
25	A	Providing access to Internet through OACs	}	
26	A	Receiving a request from Sen. Alston for ideas to assist Tas. in ICT	}	
27	A	Receiving a visit from R. E.	}	
28	A	Receiving request for Computers in Schools from Dept of Education	}	
29	A	Recognising the needs for more refinement	}	
30	A	Reconsidering the Telstra Sale bill in following year	}	
31	A	Responding to Ind Audit	}	
32	A	Seeking to spend the money strategically	}	
33	A	Selling the first slice of Telstra	}	
34	A	Senate defeating Telstra sale bill	}	
35	A	Telstra contributing $15 m	}	
36	A	Telstra have R & D at Clayton	}	
37	A	Wanted to see demonstration from Telstra	}	
38	A	Wanting to assist Tas.	}	
39	A	Wanting to make sure advanced Tas. ICT Ind significantly	}	
40	A	Being accepted by B. [IIB name]	}	
41	A	Boosted funding to $40 m [IIB]	}	

Row	Inte	Catalyst / Action		1st Higher Level Concepts
42	A	B. becoming a Board member [IIB]	}	
43	A	Establishing the Intelligent Island Board	}	
44	A	Failure to gain agreement on $20 m Centre of Excellence	}	IIB proposal, funding & establishment
45	A	IIB becoming a 5 year program	}	
46	A	Minister's advisor suggested name Intelligent Island	}	
47	A	Moving the money elsewhere	}	
48	A	Starting the programs	}	
49	A	Having a background in innovative entrepreneurship in Dept of Ind	}	Int A's policy & principles
50	A	Recognised the value of the idea	}	
51	A	Insisting that money did not go to things that he objected to on moral, ethical or religious	}	
52	A	Not wanting to trade his personal principles	}	
53	A	Wanting to do something for the State	}	B.'s policies & principles
54	A	Wanting to enterprise	}	
55	A	Wanting to help the Ind	}	
56	A	Being knocked back when sale of Hydro failed	}	
57	A	Being put forward by the ICT industry [Tas ICT strategy]	}	
58	A	Cooperation between B. & Tas. Govt	}	
59	A	Developing Computers in Schools proposals	}	Tas Govt ICT strategy
60	A	Establishing a Head of Agencies Committee	}	
61	A	Tas. Labor Govt seeking to put stamp proposal through Industry Audit	}	
62	A	Write a paper based on the ICT Industry Audit	}	
63	A	Being more interested in getting programs up & things moving [TECC]	}	
64	A	Not wanting to distribute the money	}	TECC Policy & Practice
65	A	TECC setting up websites	}	
66	A	Uni not wanting to compromise its academic / research principles	<-	UTas policy & principles [not accepting research restrictions]
67	B	Being out of dot com boom	}	
68	B	Having 2000-01 IT boom	}	ICT Economy [ca 2000]
69	B	When IT bust happened	}	
70	B	Getting Govt funding	}	Telstra - Fed Govt Funding / Tas ICT Ind development
71	B	Political factor with B.	}	
72	B	Being associated with TECC & BDF	}	
73	B	Being stakeholder in Launceston wanting to focus in information economy	}	
74	B	Forming relationships out of eLaunceston	}	Telstra - Regional focus
75	B	Having strong relationship with the city council	}	
76	B	Talking to council about how to recoup costs	}	
77	B	Rejection of IT as a career choice	}	
78	B	Being able to do pre-launch testing	}	
79	B	Being integrated into engineering side of Telstra	}	
80	B	Being no longer part of TRL [Telstra Research Labs]	}	
81	B	Being on push rather than pull model	}	
82	B	Being online anyway	}	

Row	Inte	Catalyst / Action		1st Higher Level Concepts
83	B	Being part of ICT research	}	
84	B	Commercial model not being there	}	
85	B	Conduct of early prototype research with immersive audio product	}	
86	B	Encouraging them to be active	}	
87	B	Focussed on developing the product	}	
88	B	Focussing on software development activities	}	
89	B	Getting data on customer reactions & engagement	}	
90	B	Having a quite extensive server base	}	
91	B	Having a trial capability	}	
92	B	Making a nice little earner	}	
93	B	Moving away from R&D	}	
94	B	Moving into network engineering	}	
95	B	Needing to be a business model for sustainability	}	
96	B	Obtaining subsidies for getting customers online	}	
97	B	Planning post end date of project	}	
98	B	Recognising business needs & marketing needs of Telstra	}	
99	B	Recognising that investing in the trial group was a challenge	}	
100	B	Strong correlation with data when product was launched	}	
101	B	Telstra vision that community portal be commercialised & sold to every council / commun	}	Telstra product research, development & marketing
102	B	Thinking it was successful	}	
103	B	Use of financial model of inducement	}	
104	B	Being able to put products up that customers can try out	}	
105	B	Being of great value to those guys	}	
106	B	Being the core of the LBP	}	
107	B	Bring some of these technologies to Launceston earlier	}	
108	B	Bringing ICT research to a regional area	}	
109	B	Coming up with ways to engage the greater community	}	
110	B	Developing operational capabilities from doing trails	}	
111	B	Driving broadband uptake	}	
112	B	Ending up with 4,000 broadband customers	}	
113	B	Establishing B-eLab	}	
114	B	Establishing interest-based portals in communities, not geographic	}	
115	B	Has had knock on effect with uptake of products	}	
116	B	Having a diverse group as a trial community	}	
117	B	Having an isolated regional group	}	
118	B	Kicking off research cycle in web & eCommunities	}	
119	B	Rolling out an application here & getting data on the reaction	}	
120	B	Taking over running of development	}	
121	B	Tried to have things to engage the different demographics	}	
122	B	Using premise of geographic-based portals	}	
123	B	Wrapping up LBP [Launceston Broadband Project] funding in June [2006]	}	

Row	Inte	Catalyst / Action		1st Higher Level Concepts
124	B	Building up an area of expertise & skills	}	
125	B	Challenge to get critical mass of IT staff in Launceston	}	
126	B	Focussing on getting niche area of expertise	}	
127	B	Lack of IT recruiting entity in Tas.	}	
128	B	Lack of itinerant pool of skilled people	}	Telstra staffing & staff development - Tas ICT skills
129	B	Need to deal with Melbourne recruiters	}	
130	B	Not being able to grab people with right skills at the right time	}	
131	B	Not knowing the Tas. Market by Melb. recruiters	}	
132	B	Steady drop in Uni numbers in IT	}	
133	C	Lack of draw through to local employment	}	Demand for ICT skills / graduates in Tas
134	C	Lack of perception of outcomes of ICT courses	}	
135	C	Recognising the need to separate ICT policy formulation from service delivery	}	
136	C	Reviewing other States' policies & outcomes	}	
137	C	Separating ICT policy for Service	}	Fed Govt's ICT Policy & Practice
138	C	Push from OGIT for outsourcing of ICT	}	
139	C	Concern about creating a sustainable industry	}	
140	C	Create expectation that $170m would put Tas ICT on map	}	Fed Govt's Telstra sale strategy development
141	C	Realisation by IIB that this is a drop in ocean of funding	}	
142	C	Realising $ wouldn't go anywhere	}	
143	C	Attempting to attract industry investment	}	
144	C	Eagerness of IIB chair to establish international links with Tas. ICT companies	}	ICT Ind investment attraction
145	C	Needing significant collaborative investment from industry	}	
146	C	Seeking $4.5m from Networking the Nation	}	ICT Ind investment
147	C	Submitting proposal to Nixon Enquiry in State economy in 1996	}	
148	C	Frustration with quality of applicants	}	ICT skills in Tas
149	C	Having low level of applicants	}	
150	C	Insisting on ICT focus by B.	<-	IIB Policy & Practice
151	C	IIB recommending adoption of Health Informatics for Centre of Excellence (CoE)	}	IIB Policy, Practice & outcomes
152	C	Lack of spending of IIB funds	}	
153	C	Insisting on social & regional equity by B.	<-	IIB Policy, Practice & social equity
154	C	Lack of funds for investment attraction	}	
155	C	Lacking performance measures for IIB	}	IIB proposal, funding & establishment
156	C	Not realising expectations of funding	}	
157	C	Engaging Allen Group of consultants by IIB	}	
158	C	Establishing IIB strategic plan of 6 segments	}	
159	C	Existing requirements under BITS program	}	IIB strategy & roll-out
160	C	Consideration of different CoE scenarios by IIB	}	
161	C	Failure to negotiate CoE with UTas	}	
162	C	Existing competition between small players in ICT industry	}	
163	C	Lack ICT industry vision	}	Maturity of Tas ICT Ind [lack of]
164	C	Lacking diversity of industry base	}	

Row	Inte	Catalyst / Action		1st Higher Level Concepts
165	C	Conducting a lot of discussion about New Brunswick model	<-	Tas Govt: Regional ICT development model investigation / selection
166	C	Creating Business Development Fund (BDF) in Launceston	}	
167	C	Applicants needing to have B-eLab relevance	}	Regional ICT Investment
168	C	Not working with industry to develop applicants	}	
169	C	Negotiation with UTas & Tas. Govt	<-	Relationship between IIB, Tas Govt & UTas
170	C	Being an absence of direction to IIB from State Govt	}	Relationship of IIB & Tas Govt agencies
171	C	Input to IIB from State Agency heads was limited	}	
172	C	Creating a backlash from non-funding recipients	}	Relationship of IIB & Tas Ind
173	C	Creating perception of antagonism towards IIB	}	
174	C	Change of Govt in 1998	}	
175	C	Contributed to writing Directions Statements in 1997	}	
176	C	Establishing a number of ICT initiatives	}	
177	C	Establishing IRM Task Force in 1993	}	Tas Government ICT Policy & Practice
178	C	Establishing Online Access Centre network	}	
179	C	Getting input from ICT consultants	}	
180	C	Promoting establishment of call centres	}	
181	C	Recognising the need for whole of Govt approach	}	
182	C	Conducting ICT industry audit	}	Tas ICT Ind Audit
183	C	Surveying Tas. ICT industry by IIB	}	
184	C	Installing fibre networks on both UTas campuses	}	UTas ICT Infrastructure
185	C	UTas being part of initial roll-out of AARNet	}	
186	C	Lack of investment in ICT courses at UTas	<-	UTas level of support of ICT schools
187	C	Not being able to survive in Tas.	}	
188	C	Conducting activities of IIB	}	
189	C	Raising spectre of ICT as a viable industry	}	Viability of Tas ICT Ind
190	C	Recognising ICT companies were leaving Tas.	}	
191	C	Uncertainty of number of people in ICT companies	}	
192	D	Showing by stats of low uptake - benefit of online tech. / smart businesses in Tas	}	
193	D	(not) Buying & imposing new tech.	}	
194	D	Assessing of products & feedback on a competitive basis	}	
195	D	Becoming smarter business users of technology	}	
196	D	Catalysing & helping local IT industry	}	
197	D	Creating a demand for IT services in trad. businesses	}	
198	D	Funding of 100-120 / 600 proposals	}	Business practice improvement
199	D	Getting more value from tech. in business	}	
200	D	Having been successful	}	
201	D	Overcoming disparity between regional & metro. businesses in terms of exposure to new	}	
202	D	Raising of awareness	}	
203	D	TECC created a range of products	}	
204	D	Brought people in to do project management courses	}	
205	D	Putting businesses through the wringer	}	

Row	Inte	Catalyst / Action		1st Higher Level Concepts
206	D	Co-operating with industry groups on project ~ $50k	}	
207	D	Achieving significant benefits for IT firms	}	
208	D	Did a lot of research	<-	Conduct of research [with UTas]
209	D	Happening stuff in Tas. eg TasCOLT	}	
210	D	Having got optic fibre & Basslink	}	Developing Tas ICT infrastructure
211	D	Making important groundbreaking & strategic decisions	}	
212	D	Recognising infrastructure as becoming important	}	
213	D	Establishing AECC	<-	Establishing AECC
214	D	Raising concerns about 2001 dot com crash	<-	ICT awareness raising
215	D	Establishing IIB	<-	IIB proposal, funding & establishment
216	D	Maintenance of existing fiefdoms	}	Influence on Tas Government ICT policy & practice
217	D	Size of private sector in Tasmania	}	
218	D	Lack of resources to manage knowledge	<-	Knowledge management
219	D	Changing times, 1997-now	}	
220	D	Decrease of relative investment in IT over '02-'05	}	TECC evolution 1997-2009
221	D	Existence of a single wholesale Telco in Tasmania	}	
222	D	Purchasing of optic fibre by Tas. Government	}	
223	D	Renegotiating funding with shareholders	<-	TECC funding
224	D	Speaking at 2010 forum	<-	TECC ICT awareness raising
225	D	Strategising goals of TECC	}	
226	D	Getting major contract to do regional broadband at forums nationally	}	
227	D	Creating TECC profile	}	
228	D	Organising licences for our products	}	
229	D	Receiving a lot of enquiries from other regions re products & services	}	
230	D	Competing of TECC in private sector	}	
231	D	Having strong relationship with Tas. IT business	}	
232	D	Maintaining 2 programs in TECC	}	
233	D	Working with Tas. IT business to finalise applications	}	
234	D	Business community & Government acting together about strategic plan	}	
235	D	Trying to get IT, ICT, infrastructure of future, located in Tas.	}	TECC policy & practice
236	D	Generate $25-30 m investment into Tas. business	}	
237	D	Helping a lot of local IT firms to do well	}	
238	D	Not having the resources to promote	}	
239	D	Not relying on that sort of retail	}	
240	D	Reducing resources	}	
241	D	Not being completely obvious	}	
242	D	Focusing just on project	}	
243	D	Focusing on small resources	}	
244	D	Hoping for renewed funding	}	
245	D	Not promising the world	}	

Row	Inte	Catalyst / Action		1st Higher Level Concepts
246	D	Establishing TECC	}	TECC proposal, funding & establishment
247	D	Input from State & Federal politicians in early years	}	
248	D2	Not being able to trade electronically	<-	Business practice evaluation
249	D2	Assisting business through next stage	}	
250	D2	Being a bridge to deliver Govt. programs	}	
251	D2	Consulting a wide group of stakeholders	}	
252	D2	Establish Tas Business Online	}	
253	D2	Establishing TECC	}	
254	D2	Funding EC Enable $1.8 m from Federal Government, ARIBA Involve, KPMG	}	
255	D2	Making available RTIF funds	}	
256	D2	Rolling out TasCOLT	}	
257	D2	Tasmania wanting to participate in ICT boom	}	
258	D2	Wanting awareness raising	}	
259	D2	Assessing business practices for EC Ready	}	
260	D2	Assessing online outcomes	}	
261	D2	Assessing their staff	}	
262	D2	Creating demand	}	
263	D2	Creating more intelligent users	}	
264	D2	Exposing a lot of [companies to] EC	}	
265	D2	Feeding to partner organisations	}	
266	D2	Firms applying for funds in rounds	}	
267	D2	Gathering local case studies	}	Business practice improvement
268	D2	Getting people into EC Aware	}	
269	D2	Getting them into EC Ready	}	
270	D2	Giving development assistance	}	
271	D2	Granting EC funding	}	
272	D2	Identifying a technology partner	}	
273	D2	Needing to develop a business plan	}	
274	D2	Not being interested in ICT projects to showcase ICT	}	
275	D2	Raising EC awareness	}	
276	D2	Raising the profile	}	
277	D2	Realising it was actually possible	}	
278	D2	Trying to produce successful projects to showcase Tas.	}	
279	D2	Using common-sense	}	
280	D2	Wanting demystify function of ICT	}	
281	D2	Wanting local case studies	}	
282	D2	Creating a market for ICT industry	}	
283	D2	Capturing learnings	}	
284	D2	Developing new products	}	
285	D2	Established BDF	}	
286	D2	Having dot com crash	}	

Row	Inte	Catalyst / Action		1st Higher Level Concepts
287	D2	Investment after T2 failing	}	Evaluation of business environment
288	D2	Slowing down after Y2K	}	
289	D2	Having hindsight of dot com crash	}	
290	D2	Being aware of skills shortage	<-	ICT skills shortage in Tas
291	D2	Having a body of learnings	<-	Knowledge management
292	D2	Receiving funding from private sector, State & Federal Govt.	<-	TECC funding, governance & policy
293	D2	Being autonomous	}	TECC governance & policy
294	D2	Having a board	}	
295	D2	Federal Govt. (DCITA) conducting a review of TECC	<-	TECC governance, policy & practice
296	D2	Fine tuning the TECC	}	
297	D2	Listening to Phil Ruthven	}	TECC policy & practice refinement
298	D2	Moving out of funding individual projects	}	
299	D2	Wanting development support	}	
300	D2	The way things were going	}	TECC policy & practice refocussing
301	D2	Getting into infrastructure	}	
302	D2	Banging the drum on that sort of thing	}	
303	D2	Blowing our little trumpet	}	
304	D2	Launching TECC at Wrest Point 18 Apr 1998	}	TECC policy & practice
305	D2	Letting people know what we are going	}	
306	D2	Turning up on 13 Dec 1997	}	
307	D2	Running those projects	}	
308	D2	Producing an initial business plan for the TECC	}	TECC proposal, funding & establishment
309	D2	Writing proposal for $4.5 m funding	}	
310	D2	Being under resourced	}	
311	D2	Everyone was learning	}	
312	D2	Paying full salary to post grad students	}	TECC-UTas relationship
313	D2	Having post grad students who weren't supervised	}	
314	D2	Not getting knowledge management from Uni	}	
315	E	Having other high priorities by business	}	
316	E	Needed to have BDF to kick start business	}	
317	E	Recognising that it would have been longer before businesses took up EC	}	
318	E	Develop criteria for those project funding	}	Accelerating EC uptake
319	E	Needing to put business' own money in	}	
320	E	Needing to set aside funds for particular projects	}	
321	E	Recognising the need for direction of greater benefit	}	
322	E	Appointing a small business advisor	}	
323	E	Conducting regional presentations	}	
324	E	Developing a general scope	}	
325	E	Having low degree of awareness of EC & Internet by business	}	
326	E	Helping to get an appreciation of what it meant to their business in Tasmania	}	
327	E	Not being able to change business practices quickly	}	

Row	Inte	Catalyst / Action		1st Higher Level Concepts
328	E	Not being in Melbourne / Sydney	}	
329	E	Raising awareness of EC	}	
330	E	Raising awareness of EC amongst business community	}	
331	E	Raising awareness of global EC trading	}	
332	E	Raising awareness of website construction	}	
333	E	Small business having more knowledge when approaching an IT consultant	}	
334	E	Sowing seeds in their minds	}	
335	E	Using actual examples of global EC, like Wigston Lures	}	
336	E	Establishing BDF program	}	
337	E	Forcing business to think about their business plans	}	Business practice improvement
338	E	Creating a degree of interest & excitement	}	
339	E	Directing businesses to their IT consultants	}	
340	E	Generating business for IT consultants	}	
341	E	Being independent TECC	}	
342	E	Being main industry sector	}	
343	E	Drumming up business for IT industry by TECC	}	
344	E	Be doing things a bit more quickly	}	
345	E	Demonstrating what could be achieved	}	
346	E	Developing EC Aware booklet	}	
347	E	Recognising need for education process, based on evidence	}	
348	E	Recognition of the need to help businesses to see benefits	}	
349	E	Recognition that uptake was slower in Tasmania	}	
350	E	Making online transactions by CC feasible & secure	}	
351	E	Funding projects to kick start businesses	}	
352	E	Recognising a need for a business pack	}	
353	E	Working with TECC	}	
354	E	Lacking broader range of key drivers in Tasmanian community	}	
355	E	Lacking clever IT people	}	EC drivers in Tas [lacking]
356	E	Lacking local demand for IT skills	}	
357	E	Establishing IT Industry Council by State Government	<-	Tas Govt ICT Policy & Practice
358	E	Locating TECC head office in Launceston	<-	TECC - B-eLab - LDDF relationship
359	E	Locating the DED Secretariat in Hobart	<-	TECC - IT Ind Council relationship
360	E	Determining the agreement for funding	<-	TECC funding & establishment
361	E	Having small core of enthusiasts	}	TECC funding [limited], policy & practice
362	E	Provision of moderate level of funding	}	
363	E	Seeking BDF funding	<-	TECC funding, policy & practice
364	E	Being successful in funding round	<-	TECC funding
365	E	Establishing a company joint owned by UTas & State Government	<-	TECC governance & establishment
366	E	Appointing a Board	}	
367	E	Having reporting indicators	}	TECC governance
368	E	Having to report against indicators on a regular basis	}	

Row	Inte	Catalyst / Action		1st Higher Level Concepts
369	E	Limiting extent of marketing possible	<-	TECC policy & practice
370	E	Conceiving the idea of the TECC	}	
371	E	Developing original proposal business case	}	
372	E	Introducing Networking the Nation fund	}	
373	E	Looking to develop a business case or proposal	}	TECC proposal, funding & establishment
374	E	Making available a big bucket of money	}	
375	E	Recognising the need for Tasmanian businesses to get on board with IT	}	
376	E	Recognising the need to do something by the State Government	}	
377	E	Having offices in Hobart, Launceston & Burnie	<-	TECC State -wide presence
378	E	Lacking commitment from State Government	}	
379	E	Working with State & Federal Governments	}	TECC-Tas Govt relationship
380	E	Keeping John McCann's finger on the pulse	}	
381	E	Lacking broader connection to University departments	}	
382	E	Lacking commitment from University	}	TECC-UTas relationship [lack of involvement / understanding of potential]
383	E	Lacking intellectual buy-in by University	}	
384	E	Developing business cases by PhD students	}	TECC-UTas relationship
385	E	Engaging student in research	}	
386	E	Partners having a low interest in TECC	<-	TECC-UTas-Tas Govt relationship [lack of involvement / understanding of potential]
387	F	Holding a number regional broadband development forums	}	AECC policy & practice [Broadband infrastructure advocacy]
388	F	Promoting the uptake of broadband in other regional areas on Australia	}	
389	F	Development of businesses initiatives by TECC	<-	Business practice improvement
390	F	Establishing the TECC	<-	Establishment of AECC [national]
391	F	OGIT established by Fed Govt	<-	Fed Govt ICT development policy formulation [OGIT] [WoG]
392	F	Funding of TECC of $4.5m over 3 years	<-	Fed Govt: TECC funding & establishment
393	F	Not realising what else is possible	}	ICT use & acceptance [uneven]
394	F	Recognising that adoption of next generation is too much effort	}	
395	F	Funding by IIB of skills & investment attraction programs	<-	IIB-TECC partnership: IIB programs delivery [non]
396	F	Having TECC funding	}	Non-Tas view of funding & activities [incorrect]
397	F	Being envied by other IS departments	}	
398	F	NTD actively promoting rollout of broadband in Northern Tasmania	<-	NTD Broadband infrastructure advocacy
399	F	Desire for building social capital	<-	State Govt ICT policy direction [building social capital]
400	F	Publishing of Directions Statement by Tas Govt in 1997	}	Tas Govt - Directions Statement 1997
401	F	Strategic & policy vision in P&C	}	
402	F	Strategy of computers in schools	<-	Tas Govt - Directions Statement 1997 [computers in schools]
403	F	Strong lobbying by Tas Govt	<-	Tas Govt - Fed Govt - NTN funding for TECC [lobbying]
404	F	Recognition of alignment with Tas Govt IT policy directions	<-	Tas Govt - UTas - TECC proposal & funding
405	F	Recognition of need to roll out skills & awareness programs to industry	<-	Tas Govt - UTas - TECC proposal [skills & awareness]
406	F	Fast tracking the proposal through the NTN process	<-	Tas Govt - UTas partnership - NTN funding for TECC [fast tracked]
407	F	Considerable investment in IT over 1977-1993	}	
408	F	Increasing need to network Govt agencies	}	Tas Govt approach to ICT development

Row	Inte	Catalyst / Action		1st Higher Level Concepts
409	F	Increasing use of Internet	}	
410	F	Need for regional equity policies	<-	Tas Govt ICT development policy formulation [regional equity]
411	F	Necessitated a Whole of Govt approach to ICT	}	
412	F	Need to establish commonality of standards, methodology & practice in IT mangt across a	}	Tas Govt ICT development policy formulation [WoG]
413	F	Not being well coordinated in ICT at Whole of Govt level	}	
414	F	Starting after other States in WoG IT policy setting	}	
415	F	Loss of Rundle Govt in 1998	<-	Tas Govt ICT policy - change of focus [change of Govt]
416	F	Existing strong policy focus in P&C	}	
417	F	Having a conflict of interest	}	
418	F	Establishment of CIPU in P&C	}	
419	F	Establishment of Info Strategy Unit in P&C (policy)	}	Tas Govt ICT policy & service delivery
420	F	Undermining of authority of Treasury in IT policy setting	}	
421	F	Need to separate IT policy setting from IT service delivery	}	
422	F	Co-location of IT policy setting & acquisitions in Treasury agencies	}	
423	F	Production of policy & guidelines on Project Management	}	Tas Govt project management
424	F	Recognition of risk inherent in large IT projects	}	
425	F	Focus on establishing call centres	}	
426	F	Seeking other regional IT development models	}	
427	F	Taking several trips by Ministers to Ireland, etc	}	
428	F	Use of similar models of ECCs & Business Development Centres in UK	}	
429	F	Re-use of old buildings	}	Tas Govt: Regional ICT development model investigation / selection
430	F	Recognition of low knowledge capital investments	}	
431	F	Requiring relatively low skill base	}	
432	F	Need to establish quick wins	}	
433	F	Recognising Tas IT industry needed to be distance independent of markets	}	
434	F	Recognition of need to deliver value to the regional economy	}	
435	F	Identification of New Brunswick as candidate	}	
436	F	Establishment of Steering Committee chaired by Peter Dowling	}	Tas Govt-UTas partnership: TECC establishment & governance
437	F	Establishment of TECC as a NFP Co. with Tas Govt & UTas as stakeholders	}	
438	F	Being absorbed in this IT infrastructure	}	
439	F	Being exposed to a 1st generation system	}	Tas ICT infrastructure / use [uneven]
440	F	Change of IT from rare to ubiquitous	}	
441	F	Lack of smart systems: content management; EFTPOS gateways	<-	Tas ICT Secure infrastructure [lack]
442	F	Lack of successful outcomes in terms of uptake by business	<-	TBO - Ind uptake [lack]
443	F	TECC actively promoting the rollout of broadband in Tasmania	<-	TECC Broadband infrastructure advocacy
444	F	Development of unsuccessful bid with TECC & Ericsson & IIB	<-	TECC partnerships proposal [Ericcson] / investment attraction - long-term
445	F	Headquartering TECC in Launceston	}	
446	F	Need to engage with industry	}	
447	F	Development of 4 level strategy by TECC	}	
448	F	Development of EC Aware	}	

Row	Inte	Catalyst / Action		1st Higher Level Concepts
449	F	Development of EC Enable	}	
450	F	Focus of SMEs on cash flows	}	
451	F	Lack of comparable models in Aust industry	}	
452	F	Lack of learnings coming out of TECC	}	
453	F	Development of EC Ready	}	TECC policy & practice
454	F	Engagement of TECC with a number of companies	}	
455	F	Non-realisation of goals of many funding projects	}	
456	F	Perceived lack of management of outcomes	}	
457	F	TECC administering BDF	}	
458	F	Tendency of TECC to lock up IP	}	
459	F	Running a grant program of $20k for businesses & $100k for industries	}	
460	F	Lack of recognition of drivers of change in supply chains	}	
461	F	Lack of EC demonstration projects	}	
462	F	Prematurity of program in Tas industry	}	
463	F	Existence of Towards 2010 reference group	}	TECC proposal - Towards 2010 reference group [rejection]
464	F	Presentation of TECC proposal as 1 of 4 to this group	}	
465	F	Seeing little merit in proposal	}	
466	F	Development of TECC proposal in IS group	}	TECC proposal & funding
467	F	Need to establish infrastructure for 2nd tier IT investment	}	
468	F	Engagement of Peter Nixon to develop white paper on future economic directions for Tas	<-	TECC proposal catalyst [Nixon report]
469	F	An agreement between UTas & Tas Govt to back proposal	}	
470	F	Approval of funding from NTN in late 1996	}	TECC proposal, funding & establishment
471	F	Continuing collaboration with Dept of P&C	}	
472	F	Creation of the Networking the Nation [RTIF] fund	}	
473	F	Establishing Launceston incubator	<-	TECC relationship with Tas ICT Ind
474	F	Establishing B-eLab in Launceston	<-	TECC-B-eLab relationship
475	F	Lack of recognition of value each party could bring one another	<-	TECC-IIB-Ericsson [proposed] partner under-valued potential of partnership
476	F	Establishment of TBO with ARIBA & other partners	<-	TECC-Ind partnerships [TBO-ARIBA]
477	F	Development of a firm proposal with $4.5m budget	<-	TECC-UTas partnership - TECC proposal & funding
478	F	Long term feedback to TECC	}	
479	F	Lacking strength of technological support	}	
480	F	Not having technical infrastructure in School of IS	}	
481	F	Not having technical support from Computing	}	
482	F	Not financed by the Faculty of Commerce	}	
483	F	Lacking academics who understood transforming vision into reality	}	
484	F	Lacking academics with business background	}	
485	F	Lack of communication of strategic directions from Uni to TECC	}	
486	F	Awareness that outcomes are of little immediate interest to business	}	TECC-UTas relationship
487	F	Consolidation of these learnings in research programs	}	
488	F	Engagement of researchers with industry on a day-by-day basis	}	

Row	Inte	Catalyst / Action		1st Higher Level Concepts
489	F	Identification of TECC by School of IS as a portal to SMEs	}	
490	F	Sharing of knowledge of EC uptake between TECC & School of IS	}	
491	F	Promoting opportunities for collaboration with TECC	}	
492	F	Development of cross-disciplinary research programs	}	
493	F	Establishment of joint research programs with other disciplines in UTas	}	
494	F	Establishing links between TECC & Logistics industry	}	
495	F	Establishing School of IS in 1997	}	TECC-UTas SoIS relationship [none]
496	F	Establishing TECC in 1997	}	
497	F	Lack of engagement of shareholders in TECC	<-	TECC-UTas-Tas Govt relationship
498	F	Provision of support to TECC in PostGrad student, UnderGrad projects, etc.	}	Telstra-UTas relationship
499	F	Obtained PhD funding from Telstra & ARC Linkage grant	}	
500	F	Recognition that Uni research timeframe was not compatible with industry	}	UTas - TECC policy & practice
501	F	TECC focussed on immediate / short term knowledge gathering	}	
502	F	Establishing high capacity network in UTas	}	UTas ICT Infrastructure
503	F	Rollout of AARNet	}	
504	F	Invitation for UTas to submit to this inquiry	<-	UTas invitation for input to Nixon Inquiry [Electronic Commerce Centre proposal]
505	F	Recognition by School of IS of need for EC in Logistics industry	<-	UTas SoIS
506	F	Seeing structuration as the big picture for TECC	<-	UTas-SoIS big picture vision for TECC [not shared by others]
507	G	Liking the MAPP program	<-	Acceptance of MAPP as good 'Plan B'
508	G	Being admirable & very effective	}	
509	G	Being well regarded	}	Broad support for Tas Govt Ind audit
510	G	Conducting Industry audits	}	
511	G	Having trouble seeing the business case	}	
512	G	Not having experience in large strategic initiatives	}	Business case for Bioinformatics Centre [not clear]
513	G	Seeing greater risk in IIB funding than commercial operation	}	
514	G	R. E. saying there wasn't an IT Industry plan	<-	IIB - DED [Tas Govt] awareness of Tas ICT Ind plan [not]
515	G	Having expectation to create initiatives consistent with Industry plan	<-	IIB - ITIC initiative consistent with Tas ICT Ind plan [not]
516	G	Providing advice to Govt on what was needed to be done	<-	IIB - ITIC appointment to advise Tas Govt on Tas ICT Ind plan
517	G	Being an IIB member	}	
518	G	Being ITIC chair	}	
519	G	Being lack of understanding in ITIC of IIB governance	}	IIB - ITIC dual membership
520	G	Keeping Board matters private	}	
521	G	Required to represent interests of ITIC to the IIB	}	
522	G	Expecting report back from IIB	}	
523	G	Being signed off by Tas. Govt	}	
524	G	Expecting to produce initiatives through IIB, consistent with the strategic plan	}	IIB - ITIC Expectation money was to implement Tas ICT Ind plan
525	G	Having money to implement IT Industry plan	}	
526	G	Being appointed to IIB	}	
527	G	Having brief to improve Tas. ICT Industry	}	IIB - ITIC representation on IIB
528	G	Having brief to create opportunity for Tas. ICT Industry	}	

Row	Inte	Catalyst / Action		1st Higher Level Concepts
529	G	Getting comments from Tas. ICT Industry	}	IIB - ITIC thinking tactically [perception]
530	G	Industry not being perceived as strategic by IIB	}	
531	G	Not being any latent demand for funding	<-	IIB - No projects waiting for funding [no latent demand]
532	G	Having problem of seeing it as too much of a commercial investment	<-	IIB - ROI expectations obscured possibilities
533	G	Dismissing Industry all together by IIB	}	IIB - Tas ICT Ind benefits [lack of]
534	G	Impression by Industry of lack of benefit	}	
535	G	Being issues of engagement with Industry	}	
536	G	IIB not seeing daily imperatives of Industry	}	
537	G	IIB tried to fit National solution	}	
538	G	Being nature of business in Tas.	}	
539	G	Not thinking NR was very diplomatic	}	IIB - Understanding of State-related issues [lack of]
540	G	NR asking to explain such small minded approaches	}	
541	G	NR having trouble understanding Tas. Business culture	}	
542	G	IIB not faced reality of business which is State-bound	}	
543	G	NR decided Industry was a waste of time	<-	IIB - value of Tas ICT Ind [not worth supporting]
544	G	Not thinking NR engaged with Industry	}	IIB Chairman
545	G	IIB Chair was principled, successful, vocal, well regarded	}	
546	G	IIB kept looking for the big ticket item	<-	IIB continued looking for big ticket items
547	G	B. obtaining Telstra funding	}	IIB funding - B./ Fed Govt / Telstra
548	G	Establishing Intelligent Island Fund	}	
549	G	Incubator giving management expertise at higher levels	}	IIB Incubator program - providing high level management expertise
550	G	Incubator handling contracts & risks	}	
551	G	Being a lot of people in Tas. Already doing stuff that was credible & valuable	}	
552	G	Being a small industry not worth worrying about	}	
553	G	Being overlooked in big ticket item	}	IIB policy - acceptance of MAPP as 'Plan B' [smaller achievable targets]
554	G	Funding through MAPP project	}	
555	G	Going to plan B (MAPP)	}	
556	G	IIB funds not out to be used for miniscule projects	}	
557	G	Imperative for IIB was to support significant initiatives that would produce benefits for all	}	
558	G	Looking to spend $40m on big enough item to provide an outcome for everyone	}	IIB policy - big ticket items
559	G	Use IIB funds for big ticket items	}	
560	G	Was understanding that IIB money was not going to be shared across every business	}	
561	G	Plan B being too much risk, too hard	}	
562	G	Having ambition to produce a good result in 5 years	}	
563	G	Not being a silver bullet to create	}	
564	G	Not being low hanging fruit	}	
565	G	There was no easy solution	}	IIB policy - no easy, long term solutions
566	G	Start looking for the next layer	}	
567	G	Stop looking for the easy thing	}	
568	G	Not being someone who will turn $40m into $1B	}	

Row	Intervie	1st Higher Level Concepts	1st Higher Level Concepts	1st Higher Level Concepts
1	A			
2	A	}		
3	A	}		
4	A	}		
5	A	}		
6	A	}		
7	A	}		
8	A	}		
9	A	}		
10	A	}		
11	A	}		
12	A	}		
13	A	}		
14	A	}		
15	A	}		
16	A	}		
17	A	}		
18	A	}		
19	A	}		
20	A	} Tas ICT Investment & Ind Development		
21	A	}		
22	A	}		
23	A	}		
24	A	}		
25	A	}		
26	A	}		
27	A	}		
28	A	}		
29	A	}		
30	A	}		
31	A	}		
32	A	}		
33	A	}		
34	A	}		
35	A	}		
36	A	}		
37	A	}		
38	A	}		
39	A	}		
40	A			
41	A			

Row	Intervie	1st Higher Level Concepts	1st Higher Level Concepts	1st Higher Level Concepts
42	A			
43	A			
44	A			
45	A			
46	A			
47	A			
48	A			
49	A			
50	A			
51	A			
52	A			
53	A			
54	A			
55	A			
56	A			
57	A			
58	A			
59	A			
60	A			
61	A			
62	A			
63	A			
64	A			
65	A			
66	A			
67	B			
68	B			
69	B			
70	B			
71	B			
72	B	}		
73	B	}		
74	B	} Agency networking		
75	B	}		
76	B	}		
77	B	<- Tas ICT skills		
78	B			
79	B			
80	B			
81	B			
82	B			

Row	Intervie	1st Higher Level Concepts	1st Higher Level Concepts	1st Higher Level Concepts
83	B			
84	B			
85	B			
86	B			
87	B			
88	B			
89	B			
90	B			
91	B			
92	B			
93	B			
94	B			
95	B			
96	B			
97	B			
98	B			
99	B			
100	B			
101	B			
102	B			
103	B			
104	B	}		
105	B	}		
106	B	}		
107	B	}		
108	B	}		
109	B	}		
110	B	}		
111	B	}		
112	B	}		
113	B	} Regional focus / engagement		
114	B	}		
115	B	}		
116	B	}		
117	B	}		
118	B	}		
119	B	}		
120	B	}		
121	B	}		
122	B	}		
123	B	}		

Row	Intervie	1st Higher Level Concepts	1st Higher Level Concepts	1st Higher Level Concepts
124	B			
125	B			
126	B			
127	B			
128	B			
129	B			
130	B			
131	B			
132	B			
133	C			
134	C			
135	C			
136	C			
137	C			
138	C	<- Tas Govt's ICT Policy & Practice		
139	C	}		
140	C	} Tas ICT Investment & Ind Development		
141	C	}		
142	C	}		
143	C			
144	C			
145	C	<- Govt & Ind partnerships		
146	C	} Tas economic development		
147	C	}		
148	C	} ICT Ind development in Tas		
149	C	}		
150	C			
151	C			
152	C			
153	C			
154	C			
155	C			
156	C	<- Expectations of outcomes [not met]		
157	C			
158	C			
159	C			
160	C	} ICT development opportunities		
161	C	}		
162	C			
163	C			
164	C			

Row	Intervie	1st Higher Level Concepts	1st Higher Level Concepts	1st Higher Level Concepts
165	C			
166	C	}		
167	C	} Ind Development	<- Ind engagement	
168	C	}		
169	C			
170	C			
171	C			
172	C			
173	C			
174	C			
175	C			
176	C			
177	C			
178	C			
179	C			
180	C			
181	C			
182	C			
183	C	<- IIB strategy & roll-out		
184	C			
185	C			
186	C			
187	C			
188	C	} ICT Ind investment attraction		
189	C	}		
190	C	} ICT skills in Tas		
191	C	}		
192	D	<- ICT awareness raising		
193	D	}	}	
194	D	}	}	
195	D	}	}	
196	D	}	}	
197	D	}	}	
198	D	} ICT awareness raising	} TECC policy & practice	
199	D	}	}	
200	D	}	}	
201	D	}	}	
202	D	}	}	
203	D	}	}	
204	D	}		
205	D	} Professional development		

Row	Intervie	1st Higher Level Concepts	1st Higher Level Concepts	1st Higher Level Concepts
206	D	}		
207	D	<- TECC success assessment	<- Relationship with ICT Ind	
208	D			
209	D			
210	D			
211	D			
212	D			
213	D	<- ICT export enhancement		
214	D	<- Forecasting tech-wreck		
215	D			
216	D			
217	D			
218	D			
219	D	}		
220	D	} TECC policy & practice		
221	D	}	} Tas ICT infrastructure	
222	D	}	}	
223	D	<- TECC Shareholder relationships		
224	D	<- TECC Public relations		
225	D			
226	D	<- National broadband profile		
227	D	}		
228	D	} Public relations		
229	D	}		
230	D	}		
231	D	} Relationship with Tas ICT Ind		
232	D	}		
233	D	}		
234	D	}	}	
235	D	} Relationship with Tas ICT Ind	} Tas ICT infrastructure	
236	D	}	}	
237	D	}	}	
238	D	}		
239	D	}		
240	D	}		
241	D	}	<- Public relations	
242	D	} [refocussing]	}	
243	D	}	} Tas ICT infrastructure	
244	D	}	}	
245	D	}	}	<- Public relations

Row	Intervie	1st Higher Level Concepts		1st Higher Level Concepts		1st Higher Level Concepts
246	D					
247	D	<-	TECC policy & practice			
248	D2	<-	Business practice improvement			
249	D2	}				
250	D2	}		}		
251	D2	}		}		
252	D2	}		}		
253	D2	}		}		
254	D2	}	Agency networking	}	Tas ICT Ind development	
255	D2	}		}		
256	D2	}		}		
257	D2	}		}		
258	D2	}		}		
259	D2	}				
260	D2	}				
261	D2	}				
262	D2	}				
263	D2	}				
264	D2	}				
265	D2	}				
266	D2	}				
267	D2	}				
268	D2	}				
269	D2	}	ICT awareness raising			
270	D2	}				
271	D2	}				
272	D2	}				
273	D2	}				
274	D2	}				
275	D2	}				
276	D2	}				
277	D2	}				
278	D2	}				
279	D2	}				
280	D2	}				
281	D2	}				
282	D2	}		<-	Tas ICT Ind development	
283	D2	}	Knowledge management			
284	D2	}				
285	D2	<-	Tas ICT Ind development			
286	D2					

Row	Intervie	1st Higher Level Concepts	1st Higher Level Concepts	1st Higher Level Concepts
287	D2			
288	D2			
289	D2	<- TECC policy & practice refocussing		
290	D2			
291	D2	<- TECC-UTas relationship		
292	D2			
293	D2			
294	D2			
295	D2			
296	D2			
297	D2			
298	D2			
299	D2			
300	D2	} Business practice improvement		
301	D2	}	<- Infrastructure development	
302	D2	}		
303	D2	}		
304	D2	} Public relations		
305	D2	}		
306	D2	}		
307	D2	}	<- Business practice improvement	
308	D2			
309	D2			
310	D2			
311	D2			
312	D2			
313	D2	<- Conduct of research [TECC with UTas]		
314	D2	<- Knowledge management		
315	E	}	}	
316	E	}	}	
317	E	}	}	
318	E	} Business practice improvement	} Tas ICT Ind development	}
319	E	}	}	} Co-funding projects
320	E	}	}	}
321	E	}	}	}
322	E	}		
323	E	}		
324	E	}		
325	E	}		
326	E	}		
327	E	}		

Row	Intervie	1st Higher Level Concepts	1st Higher Level Concepts	1st Higher Level Concepts
328	E	} ICT awareness raising		
329	E	}		
330	E	}		
331	E	}		
332	E	}		
333	E	}		
334	E	}		
335	E	}		
336	E	}		
337	E	}		
338	E	}	}	
339	E	}	}	
340	E	}	}	
341	E	}	}	
342	E	}	}	
343	E	}	} ICT awareness raising	
344	E	} Tas ICT Ind development	}	
345	E	}	}	
346	E	}	}	
347	E	}	}	
348	E	}	}	
349	E	}	}	
350	E	}	<- Tas ICT Infrastructure development	
351	E	}		
352	E	}		
353	E	}	<- Relationship with Tas ICT Ind	
354	E	}		
355	E	} ICT skills shortage in Tas		
356	E	}		
357	E	<- Relationship with Tas ICT Ind		
358	E			
359	E	<- TECC-Tas Govt relationship		
360	E			
361	E			
362	E			
363	E			
364	E	<- Validation of TECC policies & practice		
365	E			
366	E			
367	E			
368	E			

Row	Intervie	1st Higher Level Concepts	1st Higher Level Concepts	1st Higher Level Concepts
369	E	<- Public relations		
370	E			
371	E			
372	E			
373	E			
374	E			
375	E			
376	E			
377	E			
378	E	<- [lack of involvement / understanding of potential]		
379	E	} TECC-Fed Govt relationship		
380	E	}	<- Relationship with Tas ICT Ind	
381	E			
382	E			
383	E			
384	E	} Research / Knowledge management		
385	E	}		
386	E			
387	F			
388	F			
389	F	<- ICT awareness raising	<- Agency networking	
390	F			
391	F			
392	F			
393	F	} Possibilities of ICT [not appreciated]		
394	F	}		
395	F			
396	F			
397	F	<- Difficulty propagating ICT infrastructure big picture		
398	F			
399	F			
400	F			
401	F			
402	F			
403	F			
404	F			
405	F			
406	F			
407	F			
408	F	<- [WoG]		

Row	Intervie	1st Higher Level Concepts	1st Higher Level Concepts	1st Higher Level Concepts
409	F			
410	F			
411	F			
412	F			
413	F			
414	F	<- [leap-frogging other State Govt]		
415	F			
416	F			
417	F	<- [conflict of interest]		
418	F	}		
419	F	} [separation]		
420	F	}		
421	F	}		
422	F			
423	F	<- [early world-wide leadership]		
424	F	<- [risk recognition]		
425	F			
426	F			
427	F			
428	F			
429	F	<- [infrastructure requirements]		
430	F	<- [low knowledge capital]		
431	F	<- [low skills base]		
432	F	<- [quick wins]		
433	F	<- [distance independence]		
434	F	<- [value to regional economy]		
435	F	<- Nortel partnership		
436	F			
437	F			
438	F			
439	F			
440	F			
441	F	<- EC perceived as risk		
442	F			
443	F			
444	F			
445	F			
446	F	<- - Relationship with Tas Ind [engagement]		
447	F	}	}	
448	F	}	}	

Row	Intervie	1st Higher Level Concepts		1st Higher Level Concepts		1st Higher Level Concepts
449	F	}		}		
450	F	}	Business practice improvement	}	ICT awareness raising	
451	F	}		}		}
452	F	}		}		} Knowledge management
453	F	}		}		}
454	F	}		}		}
455	F	}	Funded Project management [lack of BDF outcomes]			
456	F	}				
457	F	<-	Funded Project management	<-	Broadband infrastructure advocacy	
458	F	}		<-	[locking up IP]	
459	F	}	Knowledge management			
460	F	}		}		
461	F	}		}	Funded Project management	<- [lack of BDF outcomes]
462	F					
463	F					
464	F					
465	F					
466	F					
467	F	<-	[IT investment]			
468	F					
469	F					
470	F					
471	F					
472	F					
473	F					
474	F					
475	F					
476	F					
477	F					
478	F	<-	Knowledge management [long-term feedback]			
479	F	}				
480	F	}	SoIS involvement with TECC [minimal] [financial & technological resources]			
481	F	}				
482	F	<-	SoIS involvement with TECC [minimal] [financial resources]			
483	F	}	SoIS involvement with TECC [minimal] [Staffing]			
484	F	}				
485	F	<-	Strategic directions [lack of] [as shareholder]			
486	F	}				
487	F	}				
488	F	}				

Row	Intervie	1st Higher Level Concepts	1st Higher Level Concepts	1st Higher Level Concepts
489	F	}		
490	F	} Research / Knowledge management		
491	F	}	<- [no joint research programs x-discipline]	
492	F	}	<- [no joint research programs]	
493	F	}		
494	F	}	<- TECC-Tas Ind relationship	
495	F			
496	F			
497	F	<- Engagement [lack of] [as shareholder]		
498	F	{ Knowledge management	<- [PhD funding - UnderGrad projects]	
499	F	{	<- [PhD funding]	
500	F	{ Knowledge management [incompatible timeframes]		
501	F	{		
502	F			
503	F			
504	F			
505	F	<- EC in Logistics [emerging need identified]	<- Ind engagement	
506	F			
507	G			
508	G			
509	G			
510	G			
511	G			
512	G			
513	G			
514	G			
515	G			
516	G			
517	G			
518	G			
519	G	{ [governance]		
520	G	{		
521	G	<- [not compromised]		
522	G	<- [reporting]		
523	G			
524	G			
525	G			
526	G			
527	G	<- Tas ICT Ind benefit		
528	G	<- Tas ICT Ind create opportunities [funding]		

Row	Intervie	1st Higher Level Concepts	1st Higher Level Concepts	1st Higher Level Concepts
529	G			
530	G			
531	G			
532	G			
533	G			
534	G			
535	G	}		
536	G	} Ind engagement [lack of]		
537	G	}		
538	G	}		
539	G	}		
540	G	} Tas business culture		
541	G	}		
542	G	}	<- Ind engagement [lack of]	
543	G			
544	G	<- - Ind engagement [lack of]		
545	G	<- seen as good choice		
546	G	Business case for Bioinformatics Centre [not clear]		
547	G			
548	G			
549	G			
550	G	<- Handle risks		
551	G	}		
552	G	}		
553	G	} Tas ICT Ind benefit		
554	G	}		
555	G	}		
556	G	}		
557	G	}		
558	G	} Benefit for whole Tas ICT Ind		
559	G	}		
560	G	}		
561	G	<- Plan B' high risk [smaller projects / programs]		
562	G			
563	G			
564	G			
565	G			
566	G	{ Investigating alternatives [Bioinformatics Centre]		
567	G	{		
568	G	<- MAPP as 'Plan B'		

Row	Intervie	1st Higher Level Concepts		1st Higher Level Concepts		1st Higher Level Concepts
569	G	<- - [concern over lack of] [after few years]				
570	G	<- - Initial funding needed Ind partnerships [to succeed]				
571	G					
572	G					
573	G					
574	G					
575	G					
576	G	} Mistrust [by ITIC]				
577	G	}				
578	G					
579	G					
580	G					
581	G					
582	G					
583	G					
584	G					
585	G					
586	G					
587	G					
588	G					
589	G					
590	G	<- [not sustainable]				
591	G	<- Leveraging investment needed [no attempt made]				
592	G	} Risk aversion		} Expecting ROI		
593	G	}		}		
594	G					
595	G					
596	G					
597	G	<- Self interest [against Ind/Tas interest]				
598	G					
599	G					

Interviewee / Page / Diagram	Catalyst / Action	Catalyst / Action - 2nd Higher Level Concepts
A-1/6	Accepting CSIRO TasICTC as acceptable alternative	Industry Development - Policy / Strategy
A-1/1,A-1/3,A-1/4,A-1/5,A-1/6, A-1/7,A-1/8,A-1/9,A-2/2,A-3/10	Developing Fed Govt's Telstra sale strategy	Industry Development - Policy / Strategy
A-1/7,A-1/9,A-2/2,A-3/10	Developing Tas Govt ICT policy / strategy	Industry Development - Policy / Strategy
A-1/6	Failing to gain agreement on $20 m Centre of Excellence [IIB]	Social Good – Intent - Thwarted by change of Govt / personnel
A-2/2	Having a background in innovative entrepreneurship in Dept of Ind [Int A]	Industry Development - Policy / Strategy
A-3/12,A-3/13,A-3/14	Wanting to avoid setting TECC as competition by distributing the Fed money	Industry Development - Policy / Strategy
A-1/6,A-2/2,A-3/10,A-3/11,A-3/11	Wanting to do something for the State (Tas) [B.]	Social Good – Intent
A-1/6	Wanting to retain academic / research principles at UTas [Bioinformatics Centre]	Industry Development - Policy / Strategy
B-1/1,B-1/2,B-1/5,B-2/10,B-2/11, B-2/6,B-2/7,B-2/8,B-2/9, B-3/12, B-3/15,B-3/16,B-3/17,B-4/18, B-4/19,B-4/20,B-4/21	Believing community portal be commercialised & sold to every council / community in Aust [Telstra / B-eLab]	National demo projects - Transferability
B-1/1,B-1/3,B-3/16	Booming ICT Economy [ca 2000]	Innovative environment
B-1/3,B-3/12,B-3/14,B-3/16,B-4/18	Forming relationships out of eLaunceston [B-eLab]	Engagement - Ind / Agencies / Stakeholders
B-2/7,B-3/14	Getting Fed Govt funding [B-eLab]	Industry Development - Policy / Strategy
B-1/3,B-1/4,B-2/7,B-3/13	Lacking itinerant pool of skilled people in Tas [B-eLab]	Skills base - Lacking
B-3/14	Networking of agencies	Ind Development - Cluster formation
C-2/6	Being an absence of direction to IIB from State Govt	Lack of state Govt ICT strategy
C-2/4	Conducting discussions about New Brunswick model	Industry Development - Policy / Strategy
C-1/1,C-3/12	Conducting ICT Ind audit [Tas Govt]	Industry Development - Policy / Strategy
C-2/6	Creating a backlash from non-funding recipients [IIB]	Industry Development - Policy / Strategy
C-2/4	Creating expectation that $170m would put Tas ICT on map	Industry Development - Policy / Strategy
C-2/4,C-2/5	Developing Fed Govt's Telstra sale strategy	Industry Development - Policy / Strategy
C-2/7	Developing Tas economy	Industry Development - Policy / Strategy
C-4/15	Developing Tas ICT Ind	Industry Development - Policy / Strategy
C-4/15	Engaging with Tas Ind	Engagement - Ind / Agencies / Stakeholders
C-1/1	Establishing IRM Task Force in 1993	Industry Development - Policy / Strategy
C-2/8,C-3/10,C-4/14	Existing requirements under BITS program for incubator program	Industry Development - Policy / Strategy
C-3/11	Insisting on ICT focus by B. [IIB]	Industry Development - Policy / Strategy
C-3/11	Insisting on social & regional equity by B. [IIB]	Social Good – Intent
C-2/2	Installing fibre (high capacity) networks on both UTas campuses	Infrastructure
C-2/3	Lacking investment in ICT courses by UTas	Skills base - Lacking
C-2/9,C-3/11,C-4/14	Lacking performance measures for IIB	Industry Development - Policy / Strategy
C-2/3	Lacking the demand for ICT skills & graduates in local employment	Skills base
C-4/16	Lacking vision/maturity within Tas ICT Ind	Industry Development - Policy / Strategy
C-4/15	Needing to have B-eLab relevant projects [BDF]	Horizontal business relationships
C-3/10	Negotiating with UTas & Tas. Govt on Bioinformatics proposal [IIB]	Industry Development - Policy / Strategy
C-3/12,C-3/13	Raising spectre of ICT as a viable Ind [IIB]	Industry Development - Policy / Strategy
C-4/15	Recognising ICT skills shortage in Tas	Skills base - Lacking

Interviewee / Page / Diagram	Catalyst / Action	Catalyst / Action - 2nd Higher Level Concepts
C-3/10,C-4/14	Recommending adoption of Health Informatics for Centre of Excellence (CoE) [IIB]	Industry Development - Policy / Strategy
C-2/7	Seeking investment from NTN for TECC [ICT Ind investment]	Industry Development - Policy / Strategy
C-2/5,C-3/10,C-3/13	Seeking to attract ICT Ind investment [international]	Ind Development - Ind Attraction
C-1/1	Separating Fed Govt's ICT Policy from Service delivery	Industry Development - Policy / Strategy
D-3/12	Conducting research with UTas	Body of Knowledge
D-2/5,D-2/8	Decreasing ICT relative investment in Tas over '02-'05	Tech-wreck - Funding
D-2/8,D-3/16	Developing Tas ICT infrastructure	Infrastructure
D-1/1	Engaging with Tas ICT Ind	Engagement - Ind / Agencies / Stakeholders
D-2/9	Enhancing ICT export opportunities	Thresh-holding
D-2/2	Establishing IIB	Industry Development - Policy / Strategy
D-1/1,D-3/17	Establishing TECC to encourage uptake of ICT in Tas	Business ICT Skills / Practice
D-2/9	Establishing the AECC [national]	National demo projects - Regional focus
D-2/3	Forecasting tech-wreck [TECC]	Tech-wreck - Reality check
D-1/1,D-3/11,D-3/14	Improve Business practices	Business ICT Skills / Practice
D-3/13	Lacking resources to manage knowledge [TECC]	Body of Knowledge
D-2/6	Maintaining existing fiefdoms within Tas Govt	Lack of state Govt ICT strategy
D-1/1,D-2/3,D-3/11	Raising awareness of ICT	Business ICT Skills / Practice
D-3/15	Renegotiating funding with shareholders [TECC]	Refunding of TECC
D-3/10	Speaking at 2010 forum to raise ICT awareness [TECC]	Industry Development - Policy / Strategy
D-1/1,D-2/4,D-2/7,D-2/9,D-3/16, D-3/18,D-3/19,D-3/20,D-3/21	Trying to establish IT, ICT, infrastructure future for Tas	Infrastructure
D2-4/19	Being autonomous [TECC]	Industry Development - Policy / Strategy
D2-3/15	Conducting review of TECC [Fed Govt (DCITA)]	Industry Development - Policy / Strategy
D2-3/17	Creating a body of learnings [TECC]	Body of Knowledge
D2-1/1,D2-1/2,D2-1/5,D2-3/8, D2-3/16,D2-4/19,D2-4/20	Developing Tas ICT Ind	Industry Development - Policy / Strategy
D2-1/2	Developing TECC proposal within IS group	Industry Development - Policy / Strategy
D2-3/8	Evaluating Business practices	Business ICT Skills / Practice
D2-2/6,D2-2/11	Evaluating Business environment	Business ICT Skills / Practice
D2-4/20	Focussing on infrastructure [TECC refocussing]	Refunding of TECC
D2-1/1,D2-1/2,D2-1/3,D2-1/4,D2-1/5,D2-2/10,D2-2/6,D2-2/9,	Improve Business practices	Business ICT Skills / Practice
D2-1/5,D2-2/7,D2-3/18,D2-4/20	Launching TECC at Wrest Point 18 Apr 1998	Industry Development - Policy / Strategy
D2-1/1,D2-1/2,D2-1/5,D2-3/8, D2-4/19,D2-4/20	Networking of agencies	Cluster formation
D2-2/13,D2-2/14	Paying full salary to post grad students [TECC]	Body of Knowledge
D2-1/1,D2-1/3,D2-1/4,D2-2/6, D2-2/9,D2-2/10,D2-3/8,D2-3/18	Raising awareness of ICT	Industry Development - Policy / Strategy
D2-4/19	Receiving funding from private sector, Tas & Fed Govts	Industry Development - Policy / Strategy
D2-2/12	Recognising ICT skills shortage in Tas	Skills base - Lacking
D2-2/7,D2-3/8,D2-4/20	Refining TECC objective with input from Phil Ruthven [Futurist]	Industry Development - Policy / Strategy

Interviewee / Page / Diagram	Catalyst / Action	Catalyst / Action - 2nd Higher Level Concepts
E-1/3,E-3/13	Accelerating the uptake of EC	Industry Development - Policy / Strategy
E-4/15	Being successful in funding round [TECC]	Refunding of TECC
E-1/3	Determining the agreement for funding [TECC]	Industry Development - Policy / Strategy
E-2/4,E-4/17	Developing business cases by PhD students [TECC]	Body of Knowledge
E-1/3,E-2/4,E-2/5,E-3/12,E-3/13	Developing Tas ICT Ind	Industry Development - Policy / Strategy
E-3/9	Engaging with Tas ICT Ind	Engagement - Ind / Agencies / Stakeholders
E-2/5	Establishing IT Ind Council by Tas Govt	Industry Development - Policy / Strategy
E-1/2	Establishing joint owned comp by UTas & Tas Govt [TECC]	Industry Development - Policy / Strategy
E-3/10	Having offices in Hobart, Launceston & Burnie [TECC]	Industry Development - Policy / Strategy
E-1/2,E-1/3	Having reporting indicators [TECC]	Industry Development - Policy / Strategy
E-4/19,E-4/14	Having small core of enthusiasts [TECC - limited funding]	Industry Development - Policy / Strategy
E-1/3,E-2/4,E-2/5,E-3/6,E-3/11, E-3/12,E-3/13	Improve Business practices	Industry Development - Policy / Strategy
E-4/18,E-4/20	Lacking commitment to TECC from UTas	Engagement - Ind / Agencies / Stakeholders
E-4/18,E-4/21	Lacking drivers for EC uptake in Tas	Lack of Markets / draw through
E-4/18	Lacking interest from shareholders of TECC	Engagement - Ind / Agencies / Stakeholders
E-4/14	Limiting extent of marketing possible [TECC funding]	Industry Development - Policy / Strategy
E-3/7	Locating TECC head office in Launceston	Industry Development - Policy / Strategy
E-3/8	Locating the DED Secretariat in Hobart	Industry Development - Policy / Strategy
E-1/1,E-1/3	Looking to develop a business case for proposal [TECC]	Industry Development - Policy / Strategy
E-1/3,E-2/4,E-2/5,E-3/6,E-3/11, E-3/12	Raising awareness of ICT	Industry Development - Policy / Strategy
E-4/21,E-4/18,E-4/21	Recognising ICT skills shortage in Tas	Skills base - Lacking
E-4/15	Seeing refunding as validation of policies & practice [TECC]	Refunding of TECC
E-3/13	Seeking BDF funding [TECC]	National demo projects - Regional focus
E-3/9,E-4/16,E-4/18	Working with Tas & Fed Govts [TECC]	Engagement - Ind / Agencies / Stakeholders
F-7/18	Advocating Broadband infrastructure development [AECC]	Infrastructure
F-3/4	Approving funding from NTN in late 1996 [Fed Govt]	Industry Development - Policy / Strategy
F-8/22	Being exposed only to a 1st generation systems	Technology determinacy verses non-determinacy
F-4/6	Change of policy direction following changing of Tas Govt (1998)	Social Good – Intent - Thwarted by change of Govt / personnel
F-3/4,F-4/5,F-5/7,F-7/16,F-7/17	Developing EC Ready program	Industry Development - Policy / Strategy
F-3/4	Developing firm TECC proposal [$4.5m budget]	Industry Development - Policy / Strategy
F-3/4	Developing TECC proposal within IS group	Industry Development - Policy / Strategy
F-6/10	Developing unsuccessful bid with TECC & Ericsson & IIB	Engagement - Ind / Agencies / Stakeholders
F-3/4	Engaging Peter Nixon to develop white paper on economic directions for Tas	Industry Development - Policy / Strategy
F-7/16	Establishing B-eLab in Launceston	National demo projects - Regional focus
F-7/17	Establishing Launceston incubator	Industry Development - Policy / Strategy
F-1/2	Establishing of Info Strategy Unit in P&C (policy)	Industry Development - Policy / Strategy
F-8/24	Establishing School of IS in 1997	Industry Development - Policy / Strategy
F-3/4	Establishing Steering Committee chaired by Peter Dowling [TECC]	Industry Development - Policy / Strategy

Interviewee / Page / Diagram	Catalyst / Action	Catalyst / Action - 2nd Higher Level Concepts
F-4/8	Establishing TBO [TECC with ARIBA & other partners]	National demo projects - Scale up
F-7/18	Establishing the AECC [national]	National demo projects - Transferability
F-3/4	Fast-tracking TECC proposal through the NTN process [Tas Govt-UTas]	Industry Development - Policy / Strategy
F-1/1	Formulation of Fed Govt ICT development policy [OGIT] [WoG]	Industry Development - Policy / Strategy
F-6/11	Funding & establishment of TECC by Fed Govt	Industry Development - Policy / Strategy
F-6/14	Funding of skills & investment attraction programs by IIB	Skills base - Development
F-4/8,F-5/7	Improve Business practices	Business ICT Skills / Practice
F-1/1	Increasing need to network Tas Govt agencies	Engagement - Ind / Agencies / Stakeholders
F-8/20	Installing fibre (high capacity) networks on both UTas campuses	Infrastructure
F-3/4	Inviting UTas to submit to Nixon Enquiry	Industry Development - Policy / Strategy
F-5/7	Lacking engagement with shareholders of TECC	Engagement - Ind / Agencies / Stakeholders
F-6/10	Lacking recognition of value each party could bring one another [TECC-IIB-Ericsson]	Engagement - Ind / Agencies / Stakeholders
F-5/7	Lacking smart systems, content management & EFTPOS gateways [Tas ICT Infrastructure]	Infrastructure
F-4/8	Lacking successful outcomes in terms of uptake by Tas businesses [TBO]	Engagement - Ind / Agencies / Stakeholders
F-3/4	Lobbying Fed Govt for NTN funding for TECC by Tas Govt	Industry Development - Policy / Strategy
F-8/22	Missing potential of ICT	Business ICT Skills / Practice
F-1/1,F-1/2	Needing commonality of standards, meth & practice in IT mangt across agencies [WoG]	Business ICT Skills / Practice
F-2/3	Needing regional equity policies [Tas Govt ICT develop policy formulation]	Social Good – Intent
F-4/8	Networking of agencies	Cluster formation
F-8/23	Perceiving SoIS as having TECC [NBN] funding	Engagement - Ind / Agencies / Stakeholders
F-3/4,F-5/7	Presenting TECC proposal to Towards 2010 ref group [rejected]	Industry Development - Policy / Strategy
F-1/2	Producing policy & guidelines on Project Management [Tas Govt]	Industry Development - Policy / Strategy
F-7/18	Promoting rollout of broadband in Northern Tasmania [NTD]	Infrastructure
F-7/18	Promoting rollout of broadband in Tas [TECC]	Infrastructure
F-4/9,F-6/12	Providing support to TECC through PostGrad student & UnderGrad projects	Engagement - Ind / Agencies / Stakeholders
F-4/6	Publishing of Directions Statement by Tas Govt in 1997	Industry Development - Policy / Strategy
F-4/8,F-5/7,F-7/17	Raising awareness of ICT	Industry Development - Policy / Strategy
F-4/9,F-6/10,F-6/13,F-7/15, F-8/19,F-8/24	Realising research outcomes are of little immediate interest to business	Corporate agenda
F-3/4	Recognising alignment of UTas with Tas Govt IT policy directions [TECC]	Industry Development - Policy / Strategy
F-7/15	Recognising need for EC in Logistics Ind [SoIS]	Industry Development - Policy / Strategy
F-3/4	Recognising need for skills & awareness programs in Tas Ind [TECC]	Industry Development - Policy / Strategy
F-4/9,F-6/10	Recognising UTas research timeframe was not compatible with Ind timeframe	Corporate agenda
F-2/3,F-4/5	Re-use of old buildings considered [New Brunswick model]	Infrastructure
F-8/23	Seeing structuration as the big picture for TECC	Industry Development - Policy / Strategy
F-8/22	Use & acceptance of ICT uneven	Industry Development - Policy / Strategy
F-4/6	Wanting computers in schools [Directions statement]	Social Good – Intent
F-4/6	Wanting to build social capital [Tas Govt ICT policy]	Social Good – Intent
G-2/10,G-2/11,G-3/15,G-3/18	Accepting MAPP as being a good 'Plan B'	Industry Development - Policy / Strategy
G-1/3	Appointed to IIB to advise Tas Govt on Tas ICT Ind plan [ITIC]	Industry Development - Policy / Strategy
G-2/7	Being a lot of commercial imperative around [IIB Incubator]	ICT Draw through

Interviewee / Page / Diagram	Catalyst / Action	Catalyst / Action - 2nd Higher Level Concepts
G-5/23	Being very few Tas. Businesses who are able to go national	Ind Development - Thresh-holding
G-1/4,G-2/11	Benefitting from IIB funding [Tas ICT Ind]	Industry Development - Policy / Strategy
G-1/3	Benefitting from involvement on IIB [Tas ICT Ind]	Industry Development - Policy / Strategy
G-1/3	Building strategic plans based on outcomes of ICT Ind audit	Industry Development - Policy / Strategy
G-1/3	Conducting Ind Audit to find out state of Tas Ind [Tas Govt]	Industry Development - Policy / Strategy
G-4/21	Deciding Tas ICT Ind not worth supporting [IIB Chairman]	Industry Development - Policy / Strategy
G-3/14	Dismissing credibility of Tas ICT Ind [IIB]	Industry Development - Policy / Strategy
G-1/1	Engaging UTas with Tas Ind	Engagement - Ind / Agencies / Stakeholders
G-1/3	Establishing Ind Councils based on Tas Govt Ind audit	Industry Development - Policy / Strategy
G-1/2,G-1/3	Expecting IIB funding was to implement Tas ICT Ind plan [ITIC]	Industry Development - Policy / Strategy
G-3/17	Having ROI obscure possibilities [IIB]	Risk culture
G-1/3	Lack of awareness of Tas ICT Ind plan by DED [Tas Govt]	Lack of state Govt ICT strategy
G-4/21,G-4/25	Lack of understanding of State-related issues [IIB Chairman]	Industry Development - Policy / Strategy
G-3/15	Lacking agreement between ITIC and vocal ICT Ind 'representatives'	Industry Development - Policy / Strategy
G-4/21,G-3/20	Lacking engagement with Tas ICT Ind [IIB Chairman]	Engagement - Ind / Agencies / Stakeholders
G-2/9	Lacking latent demand for ICT project funding in Tas [IIB]	Lack of Markets / draw through
G-2/9	Lacking sound business case for Bioinformatics Centre	Industry Development - Policy / Strategy
G-3/12	Lacking trust in Tas Govt's commitment to Tas ICT Ind	Lack of state Govt ICT strategy
G-5/22	Lacking understanding in ITIC of IIB governance	Industry Development - Policy / Strategy
G-2/9	Looking for the big ticket items [IIB]	Industry Development - Policy / Strategy
G-2/10,G-2/11,G-3/15,G-3/18	Looking to spend $40m on big item/s to provide a good outcome for everyone	Industry Development - Policy / Strategy
G-1/3	Obtaining Telstra funding for Tas [B.]	Industry Development - Policy / Strategy
G-3/13,G-5/22	Perceiving IIB thinking as strategic [ITIC]	Industry Development - Policy / Strategy
G-5/22	Perceiving ITIC as not strategic thinkers [IIB]	Industry Development - Policy / Strategy
G-3/12,G-5/22	Perceiving ITIC thinking as tactical [IIB]	Industry Development - Policy / Strategy
G-4/21	Perceiving Tas ICT Ind as not strategic thinkers [IIB]	Industry Development - Policy / Strategy
G-4/21	Perceiving Tas ICT Ind as self interested [IIB]	Industry Development - Policy / Strategy
G-2/5	Perception $40m not large amount in relative terms	Industry Development - Policy / Strategy
G-3/15	Producing innovative solutions / projects through MAPP funding	Innovative environment
G-5/24	Providing high level management expertise through IIB Incubator program	Thresh-holding
G-3/16,G-3/17,G-3/26	Recognising $10m too small for VC funding without leveraging investment	Industry Development - Policy / Strategy
G-1/3,G-2/11	Representing ITIC on IIB	Industry Development - Policy / Strategy
G-2/9	Seeing political points in IIB funding Bioinformatics proposal	Industry Development - Policy / Strategy
G-2/27	Seeking to create a replicable investment model to produce success [IIB Chairman]	National demo projects - Transferability
G-2/6	Spending of IIB funds not happened (after couple of years)	Risk culture
G-1/3	Supporting the Tas Govt Ind audit	Industry Development - Policy / Strategy
G-3/19	Thinking no outcomes would flow from CSIRO Tas ICT Centre (TasICTC) to Tas ICT Ind	Engagement - Ind / Agencies / Stakeholders
G-2/8,G-2/9,G-2/10	Thinking there was no easy, long term solutions [IIB]	Industry Development - Policy / Strategy

Inte	Consequence / Outcome		1st Higher Level Concepts
A	Being used for much the same reason as originally intended	}	
A	Moving the money elsewhere	}	Accepting CSIRO TasICTC as acceptable alternative
A	Uni not being able to take advantage of it	}	
A	Being accepted by Alston's office	}	
A	Being knocked back when sale of Hydro failed	}	
A	Developing Computers in Schools proposals	}	
A	Enhancing local support for Computers in Schools	}	Developing Comps in Schools proposals
A	Inclusion in the Industry Audit	}	
A	Proposing the Computers in Schools	}	
A	Adding more dollars	}	
A	Becoming name of program	}	
A	Being accepted by B.	}	
A	Being informed of the Tas. Industry Audits	}	
A	Being less interested in program evaluation	}	
A	Being politically good	}	
A	Being strategically not so good	}	
A	Being taken seriously	}	
A	B. being happy with paper	}	
A	Cooperation between B. & Tas. Govt	}	
A	Establishing a Head of Agencies Committee	}	
A	Give them momentum	}	Developing Fed Govt's Telstra sale strategy
A	IIB becoming a 5 year program	}	
A	Improving computer skills a strategic skills development	}	
A	Insisting money did not go to things that B. objected to on moral, ethical or religious grounds	}	
A	Made Govt look good	}	
A	Making Tas. Govt aware of opportunities	}	
A	Preparing a separate parallel announcement by Telstra	}	
A	Providing access to Internet through OACs	}	
A	Receiving request from Sen. Alston for ideas to assist Tas. in ICT	}	
A	Recognising the needs for more refinement	}	
A	Reconsidering the Telstra Sale bill in following year	}	
A	Senate defeating Telstra sale bill	}	
A	Starting the programs	}	
A	Writing revision of proposal description	}	
A	Federal Govt. contributing $15 m	}	
A	Proposing to Minister that some Telstra R & D be done in Tas.	}	Developing Fed Govt's Telstra sale strategy [B-eLab-BDF]
A	Telstra contributing $15 m	}	
A	Telstra adding $5 m to Computers in Schools program	<-	Developing Fed Govt's Telstra sale strategy [Comps in Schools]
A	Becoming the main appeal of the program	}	
A	B. becoming a Board member	}	Developing Fed Govt's Telstra sale strategy [IIB]

A	Establishing the Intelligent Island Board	}	
A	Establishing the TECC	<-	Developing Fed Govt's Telstra sale strategy [TECC]
A	Trying to bring programs from T2 together	<-	Developing Tas Govt ICT policy / strategy
A	Not wanting to upset the competition	}	Wanting to avoid setting TECC as competition by distributing the Fed money
A	Perception of unfair competition using Govt funding	}	
A	Contacting the office of the Tas. Premier	}	
A	Create jobs	}	
A	Creating some sort of cluster of new enterprise	}	
A	Ensuring adequate filtering of content in Online Access Centres & Schools	}	
A	Failure to gain agreement on $20 m Centre of Excellence	}	
A	Having the intent to develop an IT industry in Tas.	}	
A	Present paper to Sen. Alston's office	}	Wanting to do something for the State (Tas) [B.]
A	Presented paper to B. with costings	}	
A	Receiving a visit from R. E.	}	
A	Receiving an unsatisfactory reply	}	
A	Recognised the value of the idea	}	
A	Wanting to enterprise	}	
A	Write a paper based on the ICT Industry Audit	}	
A	UTas not wanting to compromise its academic / research principles	<-	Wanting to retain academic / research principles at UTas [Bioinformatics Centre]
B	Focussed on developing the product	}	
B	Focussing on getting niche area of expertise	}	
B	Focussing on software development activities	}	[Re]Focussing on product development & network engineering
B	Having a quite extensive server base	}	
B	Moving away from R&D	}	
B	Moving into network engineering	}	
B	Managed to create a sustainable IT business in Tas.	}	Being seen as a sustainable ICT business in Tas [B-eLab]
B	Thinking it was successful	}	
B	Being seen as a vote of confidence in Launceston	<-	Being seen as a vote of confidence in Launceston [B-eLab]
B	Bringing ICT research to a regional area	}	
B	Building up an area of expertise & skills	}	Bringing ICT research & expertise to Tas [regional area]
B	Establishing B-eLab	}	
B	Establishing B-eLab & LBP in Launceston	}	
B	Establishing interest-based portals in communities, not geographic	}	Developing Community Portal technology
B	Making a nice little earner	}	
B	Developing ICT skills base in Tas.	}	
B	Learnt a lot about running operational platforms	}	Developing ICT skills base in Tas [regional area]
B	Turning a disadvantage into an advantage	}	
B	Working out how to fit into Telstra	}	
B	Being easier to hold good staff	<-	Being easier to hold good staff in regional area
B	Concept fading quietly	<-	'Fading' away of commercial model for Community Portal
B	Allowed to focus on broadband applications	}	
B	Being able to iron out bugs before going public	}	

B	Being able to put products up that customers can try out	}	
B	Being of great value to those guys	}	
B	Being part of ICT research	}	Focussing on broadband applications [before going public]
B	Being seen as an advantage by Telstra marketing	}	
B	Bring some of these technologies to Launceston earlier	}	
B	Coming up with ways to engage the greater community	}	
B	Focus on particular aspects of technology	}	
B	Moved into some user acceptance testing	}	
B	Driving broadband uptake	}	Focussing on broadband applications [driving uptake] [B-eLab]
B	Not having a good answer	}	
B	Encouraging them to be active	}	
B	Ending up with 4,000 broadband customers	}	
B	Has had knock on effect with uptake of products	}	
B	Needing to work out the best way of engaging them	}	
B	Obtaining subsidies for getting customers online	}	Focussing on broadband applications [driving uptake] [LBP]
B	Prove to be more effective to get customers to self select in trails	}	
B	Recognising that investing in the trial group was a challenge	}	
B	Tried to have things to engage the different demographics	}	
B	Trying to get customers on this thing	}	
B	Developing customer management systems	}	Focussing on broadband applications [systems development]
B	Developing widgets for Bigpond	}	
B	Driving what the B-eLab does	}	
B	Enabled them to hone in on particular market	}	Focussing on broadband applications [Telstra's marketing needs]
B	Strong correlation with data when product was launched	}	
B	Support significant difference in way Launceston reacted compared with greater market	}	
B	Giving Tas Graduates in ICT & Engineering option for developing careers	<-	Giving Tas ICT & Engineering Graduates options for developing careers [in Region]
B	Taking over running of development	}	
B	Tended to kick off portals with seed money	}	
B	Needing to be a business model for sustainability	}	Looking for sustainable business model for community portal [eLaunceston]
B	Not answering how it is going to be sustainable	}	
B	Not being a good answer	}	
B	Questionable about what model was to fund portal	}	
B	Not having capability to fund living laboratory	<-	Regional focus, Broadband applications, ICT industry development
B	Being a challenge to get qualified staff	}	
B	Being easier to hold good staff	}	
B	Rejection of IT as a career choice	}	Securing qualified staff a challenge [ca 2000]
B	Steady drop in Uni numbers in IT	}	
B	Challenge to get critical mass of IT staff in Launceston	}	
B	Lack of itinerant pool of skilled people	}	
B	Making it hard to recruit IT staff	}	Securing qualified staff a challenge [regional area]

B	Need to deal with Melbourne recruiters	}	
B	Not being able to take on project	}	
C	Seeking $4.5m from Networking the Nation	<-	Developing Tas economy, ICT Ind & ICT skills
C	Giving Tas. a leading position in public Internet access	<-	Developing Tas ICT access & ICT skills
C	Lack of establishment of ICT clusters	<-	Developing Tas ICT Ind
C	Frustration with quality of applicants	}	
C	Funding companies to get over the threshold	}	
C	Funding of short term outcomes	}	
C	Having little effect on ICT industry	}	Developing Tas ICT Ind & ICT skills
C	IIB recommending adoption of Health Informatics for CoE	}	
C	Recognising ICT companies were leaving Tas.	}	
C	Mentoring some ICT companies	<-	Developing Tas ICT Ind [business skills]
C	Encouraging a more global perspective	}	
C	Funding international trade & investment trips by ICT companies	}	Developing Tas ICT Ind [global perspective]
C	Being globally connected	<-	Developing Tas ICT infrastructure
C	State being positioned to take opportunity of sale of Telstra	<-	Developing Tas ICT policy & policy [Tas Govt]
C	Being positioned to bid for Telstra funds	}	
C	Establishing in Computers in Schools program	}	Developing Tas ICT policy & practice [Tas Govt]
C	Establishing IRM Task Force in 1993	}	
C	Establishing Online Access Centre network	}	
C	Apportioning $40m to each of these segments	}	
C	Creating expectation of starting an ICT industry	}	
C	Establishing blueprint for IIB activities	}	
C	Establishing CoE in Health Informatics	}	Developing Tas ICT policy & strategy [IIB]
C	Establishing IIB strategic plan of 6 segments	}	
C	Establishing Interlink Incubator program	}	
C	Spending much $ by 2003	}	
C	Conducting ICT industry audit	}	
C	Contributed to writing Directions Statements in 1997	}	
C	Countering perception of non-credibility of ICT industry	}	
C	Establishing a number of ICT initiatives	}	Developing Tas ICT policy & strategy [Tas Govt]
C	Establishment of TECC	}	
C	Uncertainty of number of people in ICT companies	}	
C	Being low enrolments in advanced dip. ICT courses at TAFE	}	
C	Suffering from an ICT enrolment lag	}	Developing Tas ICT skills
C	Taking about 5 years to build up numbers over 1997-2002	}	
C	Surveying Tas. ICT industry by IIB	<-	Developing Tas Ind & ICT skills
C	Keeping ICT policy in Treasury & DPAC	}	
C	Moving ICT service delivery to Service Tas. for the public interface	}	Implementing Fed Govt ICT policy & practice [separating policy & delivery]
C	Recognising the need to separate ICT policy formulation from service delivery	}	
C	Separating ICT policy for Service	}	

C	Outsourcing of whole of Govt telephony & network infrastructure	<-	Implementing Tas Govt ICT policy [outsourcing]
C	Being an absence of direction to IIB from State Govt	<-	Lacking direction from Tas Govt [IIB governance]
C	Being realistic about possible achievements	}	
C	Concern about creating a sustainable industry	}	
C	Perception that IIB ineffectual	}	Managing expectations of IIB initiatives, programs & outcomes
C	Realising $ wouldn't go anywhere	}	
C	Recommending against continuing investment attraction by IIB	}	
C	Trying to follow New Brunswick with quick win call centre & ICT development	<-	Managing expectations of IIB initiatives, programs & outcomes [social bonus]
C	Creating perception of antagonism towards IIB	<-	Managing relationship between Tas ICT Ind & IIB
C	Assisting companies with developing viable ICT business plan	}	
C	Attracting limited number of new companies to State	}	
C	Raising spectre of ICT as a viable industry	}	Promoting viability of Tas ICT Ind as attractive investment option
C	Spending time to attract investors	}	
C	Establishing CSIRO ICT Centre in Hobart	<-	Refocussing IIB policy & strategy [TasICTC]
C	Promoting establishment of call centres	<-	Refocussing Tas Govt policy & practice [post change of Tas Govt]
D	Having been successful	}	Assessing effectiveness of TECC policy & practice [health of Tas ICT Ind]
D	Helping a lot of local IT firms to do well	}	
D	Securing a really proportional amount of money fro Tas.	<-	Creating alliance between TECC, Tas ICT Ind, Business, & Tas Govt to lobby Fed Govt
D	(not) Buying & imposing new tech.	}	
D	Attracting new industries & services	}	Creating demand for ICT services [TECC policy & practice]
D	Creating a demand for IT services in trad. businesses	}	
D	(not) Buying & imposing new tech.	<-	Creating a demand for services from existing ICT businesses
D	Lack of resources to manage knowledge	<-	Developing a body of knowledge
D	Having post-graduates from University	<-	Developing a body of knowledge [with UTas]
D	Funding of 100-120 / 600 proposals	}	
D	Generate $25-30 m investment into Tas. business	}	Developing ICT showcases & accelerating EC uptake [co-investment]
D	Getting money out of the door	}	
D	Having a lot of interaction with local IT firms	<-	Developing relationships with Tas ICT Ind
D	Achieving significant benefits for IT firms	}	
D	Assessing of products & feedback on a competitive basis	}	
D	Assisting in looking to improved business performance	}	
D	Becoming smarter business users of technology	}	
D	Capitalising on export opportunities	}	
D	Developed products, workshops & methodologies of smart business, BPR, etc.	}	
D	Getting more value from tech. in business	}	
D	Giving a huge boost to activity	}	
D	Leaving awareness in traditional businesses	}	
D	Making sure apps were appropriate	}	Developing Tas business ICT practice & skills
D	Making sure investments had best chance of success	}	
D	Making sure they had a sound business plan	}	

D	Providing clear access to support & expertise in global marketplace	}	
D	Putting businesses through the wringer	}	
D	Refining business plans	}	
D	Seeking to improve business process through BPR, new markets, BI	}	
D	Trying to help new technology business in Tasmania	}	
D	Working with Tas. IT business to finalise applications	}	
D	Continuing work with traditional business EC, smart ICT, eGovernment, etc.	<-	Developing Tas business ICT practice & skills [Corp & Govt]
D	Needing work to be done	}	Developing Tas business ICT practice & skills to national / international standards
D	Overcoming disparity between regional & metro. businesses in terms of exposure to new online tech.	}	
D	Catalysing & helping local IT industry	<-	Developing Tas business practice & skills
D	Make sure the ability to earn income from products ex Tas.	}	
D	Organising licences for our products	}	Establishing AECC [exporting body of knowledge]
D	Organising some staff to talk to them	}	
D	Receiving a lot of enquiries from other regions re products & services	}	
D	(not) Confuse people about spending money ex Tas.	}	Establishing AECC [National]
D	Getting major contract to do regional broadband at forums nationally	}	
D	(not) Funding of Tasmanian IT businesses	}	Establishing TECC policy & strategy [ICT awareness & uptake - not ICT Ind development]
D	(not) Supporting & developing IT sector	}	
D	Changes in Government purchasing techniques	<-	Influencing Tas Govt policy & practice [supply chain & EC systems development]
D	Bringing up a lot of issues	}	
D	Having strong relationship with Tas. IT business	}	Managing relationship between Tas ICT industry & TECC
D	Affecting a lot of things, co-investment, slowing down	}	
D	Being too hard for them to understand	}	
D	Creating interest	}	Raising awareness of business use of ICTs
D	Raising of awareness	}	
D	Took a lot of risk out of traditional business	<-	Reducing risks for traditional Tas businesses [of using ICT]
D	Keeping TECC running in lean times	}	
D	Looking into issues why things weren't happening in Tas.	}	
D	Not being a good time to say where we are going	}	
D	Not being the organisation we were	}	
D	Not having the resources to promote	}	Refocussing of TECC policy & practice [response to changing demands / funding]
D	Providing new online services	}	
D	Working as a quiet organisation, still pushing the message	}	
D	Working close to shareholders	}	
D	Working on strategy for some important themes for Tas.	}	
D	Changing emphasis & demand for ICT	}	
D	Have not been promoting ourselves	}	
D	Being very proud of our involvement & initiation	}	
D	Can look at whole new list of opportunities	}	

D	Happening stuff in Tas. eg TasCOLT	}	
D	Making important groundbreaking & strategic decisions	}	Refocussing on Infrastructure investment
D	Recognising infrastructure as becoming important	}	
D	Trying to get IT, ICT, infrastructure of future, located in Tas.	}	
D	Separate from IIB, etc.	<-	Retaining independent from other Fed Govt funded programs
D	Shaping of TECC	<-	Shaping of TECC policy, strategy & practice by shareholders
D2	Creating a market for ICT industry	}	Creating demand for ICT services [TECC policy & practice]
D2	Creating demand	}	
D2	Capturing learnings	}	
D2	Designing programs for State & Federal Govts.	}	
D2	Developing new products	}	
D2	Developing their own strategies	}	
D2	Gathering local case studies	}	Developing a body of knowledge
D2	Identifying issues faced by regional communities	}	
D2	Retaining IP for additional projects	}	
D2	Sharing knowledge with post grads	}	
D2	Thinking that would have handled Uni a lot differently	}	
D2	Funding Tas Arts & Cmty Online, Apple & Pear Growers, Blundstones, King Is. Dairies	}	
D2	Getting good idea of where people are at	}	
D2	Not funding some projects	}	
D2	Partnering them	}	Developing ICT showcases & accelerating EC uptake [co-investment]
D2	Promote new broadband industries	}	
D2	Surviving in the global marketplace	}	
D2	TECC monitoring milestones	}	
D2	Establish Tas Business Online	}	Developing supply chain & EC systems
D2	Increased transacting online	}	
D2	Funding EC Enable $1.8 m from Fed Govt, ARIBA Involve, KPMG	<-	Developing supply chain & EC systems [through Ind partnerships]
D2	(not) Being susceptible to being overtaken	}	
D2	(not) Seeing ourselves as funding body	}	
D2	Achieving business results	}	
D2	Assisting business through next stage	}	
D2	Being a partner	}	
D2	Being asked to refine & implement EC systems & technology	}	
D2	Being quite proud of their achievements	}	
D2	Creating more intelligent users	}	Developing Tas business ICT practice & skills
D2	Giving development assistance	}	
D2	Granting EC funding	}	
D2	Identifying a technology partner	}	
D2	Making smarter businesses	}	
D2	Needing to develop a business plan	}	
D2	Providing fine tuning & ongoing capability	}	

D2	Shaping policy	}	
D2	Making smarter businesses	<-	Creating demand for ICT services [TECC policy & practice]
D2	Shaping policy	<-	Developing a body of knowledge
D2	Pointing out overcoming disparity between regional & metropolitan ICT & uptake & use of advanced ICT	<-	Developing Tas business ICT practice & skills to national / international standards
D2	Consulting a wide group of stakeholders	<-	Developing Tas Govt ICT policy & strategy
D2	Identifying young champions in funded projects	<-	Developing Tas ICT skills
D2	Listening to Phil Ruthven	}	Developing TECC policy, & strategy
D2	Producing an initial business plan for the TECC	}	
D2	TECC becoming number 1 priority under Networking the Nation	}	Developing TECC proposal
D2	Writing proposal for $4.5 m funding	}	
D2	Receiving funding from private sector, State & Federal Govt.	<-	Developing TECC structure, policy, & practice
D2	Being a bridge to deliver Govt. programs	}	
D2	Getting activity going	}	Developing TECC structure, policy, & strategy
D2	Having a board	}	
D2	(not) Developing ICT industry	<-	Establishing TECC policy & strategy [ICT awareness & uptake - not ICT Ind development]
D2	(not) Getting Government purchasing online	<-	Influencing Tas Govt policy & practice [supply chain & EC systems development]
D2	Maintaining a state-wide focus	<-	Maintaining state-wide stakeholder consultations
D2	(not) Partnering with School of IS	<-	Managing relationship between UTas / SoIS & TECC [potential not met]
D2	Assessing online outcomes	}	
D2	Attracting 200 people	}	
D2	Firms applying for funds in rounds	}	
D2	Getting people into EC Aware	}	
D2	Getting them into EC Ready	}	Raising awareness of business use of ICTs
D2	Launching TECC at Wrest Point 18 Apr 1998	}	
D2	Letting people know what we are going	}	
D2	Making them aware of it	}	
D2	Raising EC awareness	}	
D2	Realising it was actually possible	}	
D2	Turning up on 13 Dec 1997	}	
D2	Removing the risk at each stage	}	
D2	Taking greater care – less risk	}	Reducing risks for traditional Tas businesses [of using ICT]
D2	Taking the risk out of IT	}	
D2	(not) Leading people to where they can't carry it out	}	
D2	Being quire proud of their achievements	}	
D2	Being very responsive all the way through	}	
D2	Fine tuning the TECC	}	Refocussing of TECC policy & practice [response to changing demands / funding]
D2	Moving out of funding individual projects	}	
D2	Procuring online, developing online catalogues	}	
D2	Raising the profile	}	
D2	Thinking that's been good for the State	}	
D2	Moving out of funding individual projects	}	

D2	Getting into infrastructure	}	Refocussing on Infrastructure investment
D2	Rolling out TasCOLT	}	
D2	Taking risk again	}	
E	Being well received by ICT industry	}	
E	Creating a degree of interest & excitement	}	
E	Directing businesses to their IT consultants	}	
E	Directing small business to IT consultants	}	
E	Drumming up business for IT industry by TECC	}	Creating demand for ICT services [TECC policy & practice]
E	Generating business for IT consultants	}	
E	Generating new business for TECC	}	
E	Needing to determine services required by businesses	}	
E	Perceiving TECC program as a benefit by providers	}	
E	Providing a consulting service	}	
E	Demonstrating what could be achieved	}	
E	Developing case studies	}	
E	Developing EC Aware booklet	}	Developing a body of knowledge
E	Specialising in primary & associated industries	}	
E	Demonstrating what could be achieved	}	Managing relationship between Tas ICT Ind & TECC
E	Developing case studies	}	
E	Be doing things a bit more quickly	}	
E	Creating a flow on effect in business	}	
E	Needed to have BDF to kick start business	}	Developing ICT showcases & accelerating EC uptake [co-investment]
E	Recognising that it would have been longer before businesses took up EC	}	
E	Seeking BDF funding	}	
E	Being able to ask the right questions	}	
E	Creating benefits for business despite funding outcomes	}	
E	Developing new skills in business planning	}	
E	Forcing business to think about their business plans	}	Developing Tas business ICT practice & skills
E	Making online transactions by CC feasible & secure	}	
E	Making potential of online trading more realistic	}	
E	Recognising the costs & risks of going to online trading	}	
E	Sowing seeds in their minds	}	
E	(not) Delivering the same thing	}	Developing Tas business ICT practice & skills [not duplicating existing services]
E	(not) Reinventing the wheel	}	
E	Bringing IT industry together	<-	Developing Tas Govt ICT policy & strategy
E	Develop criteria for those project funding	}	
E	Developing a general scope	}	Developing TECC policy & practice
E	Recognising the need for direction of greater benefit	}	
E	Forming the basis of the organisation structure	}	
E	Having reporting indicators	}	Developing TECC policy & strategy
E	Needing to set aside funds for particular projects	}	

E	Conceiving the idea of the TECC	}	
E	Determining the agreement for funding	}	
E	Developing the TECC proposal	}	Developing TECC proposal
E	Looking to develop a business case or proposal	}	
E	Making available a big bucket of money	}	
E	Appointing a Board	}	
E	Appointing J. L. as Executive Officer	}	
E	Having representation of key stakeholders	}	Developing TECC structure, policy, & strategy
E	Having to report against indicators on a regular basis	}	
E	Interviewing & appointing John McCann as CEO	}	
E	Focussing on doing things not flag waving	<-	Focussing on service delivery [TECC policy & strategy]
E	Limiting extent of marketing possible	}	Focussing on service delivery [TECC policy, practice & funding]
E	Not making a big ripple	}	
E	Lacking awareness of TECC in wider community	<-	Lack of TECC brand awareness
E	Lack of adoption of strategic vision for TECC	}	Lacking EC uptake drivers in Tas
E	Lacking development of IT cluster in Tasmania	}	
E	Partners having a low interest in TECC	}	Lacking understanding of potential of TECC by UTas [shareholder]
E	Lacking understanding of potential of TECC by University	}	
E	Basing IT Industry Council in Hobart	}	
E	Establishing B-eLab & LDDF in Launceston	}	Maintaining state-wide stakeholder consultations
E	Having a State-wide presence	}	
E	Having the keep politicians & funding agencies informed	<-	Managing relationship with Tas & Fed Govt
E	Working with TECC	<-	Managing relationship with Tas ICT Ind
E	Bringing attention to the way the world's going	}	
E	Encouraging business to consider EC for profit or efficiency	}	
E	Encouraging businesses to think about what this meant to their business	}	
E	Handling specific small business queries	}	
E	Helping to get an appreciation of what it meant to their business in Tasmania	}	
E	Lacking awareness of website advertising	}	
E	Raising awareness of EC	}	Raising awareness of business use of ICTs
E	Raising awareness of EC amongst business community	}	
E	Raising awareness of global EC trading	}	
E	Raising awareness of website construction	}	
E	Recognising a need for a business pack	}	
E	Recognising need for education process, based on evidence	}	
E	Recognition of the need to help businesses to see benefits	}	
E	Small business having more knowledge when approaching an IT consultant	}	
E	Establishing BDF program	<-	Refocussing TECC policy & practice [response to changing demands / funding]
E	Receiving second round of funding	<-	Securing additional funding [Validation of TECC policies and practice]

F	Could be relocated at whim of Telcos	<-	Accepting risks of New Brunswick model [easy relocation]
F	Fast tracking the proposal through the NTN process	<-	Accepting TECC proposal by NTN
F	Approval of funding from NTN in late 1996	<-	Accepting TECC proposal by NTN [late 1996]
F	Establishing call centres in Kingston, Glenorchy, Launceston, Burnie, & Devonport	}	
F	Focus on establishing call centres	}	Adopting New Brunswick model as blueprint for Tas Govt ICT strategy
F	Identification of New Brunswick as candidate	}	
F	Recognition of low knowledge capital investments	<-	Adopting New Brunswick model as blueprint for Tas Govt ICT strategy [low capital investment]
F	Seen as first round of IT investment	<-	Adopting New Brunswick model as blueprint for Tas Govt ICT strategy [low knowledge capital investment]
F	Demonstrating a business case for broadband rollout in Tasmania	<-	Advocating broadband infrastructure development [NTD]
F	Becoming locked into a particular generation	}	
F	Controlling adoption by bureaucracy	}	
F	Lack of wider perspective by users of this technology	}	Becoming locked into early generation solutions [early adopters]
F	Not realising what else is possible	}	
F	Establishing linkages with some Logistics providers	}	
F	1 x PhD & n x MIS projects in EC + Logistics	}	Broadening focus to include eLogistics [UTas SoIS]
F	Recognition by School of IS of need for EC in Logistics industry	}	
F	Loss of staff & policy focus from P&C	<-	Changing ICT policy focus & losing staff following change of Tas Govt [1998]
F	Need to develop new directions in IT	<-	Changing ICT policy focus following change of Tas Govt [1998]
F	Being absorbed in this IT infrastructure	<-	Changing status of ICT availability, use and acceptance [rare -> ubiquitous]
F	Consulting with TECC on joint funding / sponsorship	<-	Consulting TECC re joint PhD funding / sponsorship applications [SoIS] [no outcome]
F	TECC focussed on immediate / short term knowledge gathering	<-	Developing a body of knowledge [focus on quick results]
F	Engagement of researchers with industry on a day-by-day basis	<-	Developing a body of knowledge [TECC - SoIS]
F	Development of 4th level	}	
F	Development of EC Aware	}	
F	Development of EC Enable	}	Developing a body of knowledge [TECC]
F	Development of EC Ready	}	
F	Writing of case studies & promotional material	}	
F	Became adjunct to School research program	}	
F	Consolidation of these learnings in research programs	}	
F	Long term feedback to TECC	}	
F	Number of Honours scholarships funded through TECC	}	Developing a body of knowledge [TECC-SoIS]
F	Provision of useful knowledge to TECC staff	}	
F	Sharing of knowledge of EC uptake between TECC & School of IS	}	
F	Bringing ratio of student:PC to 6:1	<-	Developing Comps in Schools proposals
F	IT up-skilling of teachers	<-	Developing Comps in Schools proposals [up-skilling teachers]
F	Development of cross-disciplinary research programs	}	Developing cross-disciplinary research programs [UTas] [no outcome]
F	Establishment of joint research programs with other disciplines in UTas	}	

F	Establishing a long term funding timetable	<-	Developing Fed Govt's Telstra sale strategy [TECC]
F	Funding of some joint ventures with these companies	<-	Developing ICT showcases & accelerating EC uptake [co-investment]
F	Need to include broadband relevance in BDF applications	<-	Developing ICT showcases & accelerating EC uptake [co-investment] [B-eLab-BDF]
F	Running a grant program of $20k for businesses & $100k for industries	}	
F	TECC administering BDF	}	
F	TECC providing IT infrastructure, leading to possible uptake & industry development	}	Developing ICT showcases & accelerating EC uptake [co-investment] [TECC-BDF]
F	Technology transfer of research outcomes to industry	}	
F	Working with companies to deliver realistic solutions	}	
F	Development of unsuccessful bid with TECC & Ericsson & IIB	<-	Developing joint funding applications with Ind [TECC, IIB, Ericsson]
F	Establishment of TBO with ARIBA & other partners	<-	Developing supply chain & EC systems [through Ind partnerships] [TECC]
F	Established IRM taskforce to formulate WoG directions for ICT	}	Developing Tas ICT policy & strategy [Tas Govt]
F	Establishment of Steering Committee chaired by Dean of Business	}	
F	Having greater focus on SMEs, not public sector	}	
F	Headquartering TECC in Launceston	}	Developing TECC policy & practice [SME focus]
F	Development of a firm proposal with $4.5m budget	}	
F	An agreement between UTas & Tas Govt to back proposal	}	Developing TECC proposal [UTas & Tas Govt]
F	Development of TECC proposal in IS group	}	
F	Invitation for UTas to submit to this inquiry	<-	Developing TECC proposal [UTas input]
F	Appointment of Board with Rod Scott as Chair	}	
F	Appointment of John McCann as CEO in 1997	}	Developing TECC structure & governance
F	Establishment of TECC as a NFP Co. with Tas Govt & UTas as stakeholders	}	
F	Necessitated a Whole of Govt approach to ICT	<-	Developing WoG approach to ICT [Tas Govt]
F	Kept IS academics engaged with industry & informed	<-	Engaging SoIS academics with Ind [Logistics]
F	Engagement of TECC with a number of companies	<-	Engaging with other agencies [TECC - Ltn Incubator]
F	Held in Ballarat	}	
F	Held in Launceston	}	
F	Held in Queensland	}	Establishing AECC [Accelerating EC uptake on 'National' scale]
F	Holding a number regional broadband development forums	}	
F	Promoting the uptake of broadband in other regional areas on Australia	}	
F	TECC actively promoting the rollout of broadband in Tasmania	}	
F	Establishment of LDDF as bi-monthly forum	}	Establishing LDDF in Ltn to network ICT Ind & Govt Agencies [TECC]
F	Establishment of LDDF as knowledge sharing platform in Launceston	}	
F	Use of TECC to actively deliver any of these programs	<-	Failing to use TECC to deliver skills & investment attraction programs [TECC - IIB]
F	Funding of PostGrad research	<-	Funding PostGrads at SoIS [TECC] [no outcome]
F	Funding of Paul Turner's position ($75k)	<-	Funding senior research position at SoIS [TECC]
F	Having a conflict of interest	<-	Having a conflict of interest by co-locating policy & delivery in one dept [Tas Govt]
F	Courting Nortel as potential partner	<-	Identifying potential development partnerships [New Brunswick model]
F	Establishment of Info Strategy Unit in P&C (policy)	}	

F	Monitoring of IT contracting in Treasury	}	Implementing Fed Govt ICT policy & practice [separating policy & delivery]
F	Most States establishing WoG IT directions	}	
F	Need to separate IT policy setting from IT service delivery	}	
F	Few staff having direct involvement with TECC	<-	Lacking appropriate academic staff to develop potential relationship with TECC [SoIS]
F	Inability to establish a working EC lab	<-	Lacking appropriate support & academic staff to establish working EC lab [SoIS]
F	Inhibiting long term goals being established	<-	Lacking direction / communication from UTas [TECC]
F	Lack of EC demonstration projects	<-	Lacking EC demonstration products
F	Perception of EC as high risk by SMEs	<-	Lacking EC showcases [TECC-SoIS]
F	Lacking strength of technological support	}	Lacking funds to acquire technical support & infrastructure to develop desired research projects [SoIS]
F	Not having technical infrastructure in School of IS	}	
F	Lack of knowledge transfer to industry	}	Lacking knowledge transfer to Tas businesses [TECC]
F	Lack of learnings coming out of TECC	}	
F	Inhibiting move to next tier of IT investment	<-	Lacking learnings / demonstrations of next level ICT use [TECC]
F	Lack of successful outcomes in terms of uptake by business	}	Lacking realisation of potential of TBO [TECC-Tas Govt]
F	Loss of partner	}	
F	Not being able to capitalise on relationship with TECC	<-	Lacking realisation of potential of TECC [UTas]
F	Need to manage this portal to protect interests of all parties	<-	Lacking realisation of potential of TECC as SME portal [UTas]
F	Lack of recognition of value each party could bring one another	<-	Lacking recognition of potential value of partnership [IIB-TECC-Ericsson]
F	Leap-frogged other States in IT policy, service delivery &project management	<-	Learning from Fed & other State Govts to 'leap-frog other States in ICT policy & practice
F	Taking several trips by Ministers to Ireland, etc	<-	Learning from other regional ICT development policies & practice [Ireland, etc]
F	Use of similar models of ECCs & Business Development Centres in UK	<-	Learning from other regional ICT development policies & practice [Manchester]
F	Being envied by other IS departments	<-	Managing perception of SoIS funding windfall [mainland Unis]
F	Desire for TECC to work closely with Tas industry as small business advisory / enabling unit	<-	Managing relationship between Tas ICT industry & TECC
F	Presentation of TECC proposal as 1 of 4 to this group	<-	Presenting TECC proposal & budget to Towards 2010 reference group
F	Production of policy & guidelines on Project Management	<-	Producing policy & guidelines to reduce risk in large projects [CIPU-Tas Govt]
F	Cross-promotion of TECC by / for School of IS	<-	Promoting each other's programs [TECC-SoIS]
F	Being able to offer immediate benefits through TECC	<-	Providing immediate benefits to Tas businesses [TECC / SoIS]
F	Strategy of computers in schools	<-	Publishing Comps in Schools proposal [Directions Statement]
F	Publishing of Directions Statement by Tas Govt in 1997	<-	Publishing Directions Statement by Tas Govt [1997]
F	GICT guidelines publication	<-	Publishing ICT guidelines [Fed Govt]
F	Conduct of awareness raising seminars – mainly at industry group level by J. L.	<-	Raising awareness of business use of ICTs
F	Non-realisation of goals of many funding projects	<-	Realising full potential of funded projects not always reached [BDF]
F	Obtaining support from TCCI	<-	Receiving support from business community for TECC proposal [TCCI]
F	Establishment of CIPU in P&C	<-	Recognising risk in large projects and establishing CIPU [Tas Govt]
F	Undermining of authority of Treasury in IT policy setting	<-	Recognising risk of co-location of ICT policy & practice [Tas Govt]
F	Feeling alone with these issues within School of IS	<-	Struggling to propagating ICT infrastructure big picture [SoIS]

F	Conveyed to other people involved	<-	Struggling to propagating ICT infrastructure big picture [TECC]
F	Being viewed as a waste of time by some in Uni & Antarctic Division	<-	Struggling to receive acceptance of need for, and viability of Tas ICT infrastructure development
F	Being given a very solid thumbs down: ranked 4 of 4	}	Struggling to receive acceptance of need for, and viability of TECC proposal
F	Seeing little merit in proposal	}	
F	Identification of TECC by School of IS as a portal to SMEs	<-	Supporting UnderGrads projects & PostGrads at SoIS [TECC]
G	Being a good selection	<-	Accepting IIB Chairman as good choice [Int G]
G	Thinking it is unfortunate it took so long	<-	Accepting MAPP took too long to establish & missed opportunities
G	There was no easy solution	<-	Accepting no easy solutions for IIB
G	Being nature of business in Tas.	<-	Accepting Tas ICT Ind is generally tactical [IIB]
G	Becoming clear that there wasn't a button to press to produce this outcome	<-	Accepting there are no easy solutions [IIB]
G	Probably knowing better than a lot of Industry	<-	Acknowledging IIB members as strategic thinking
G	Being funded by IIB	}	
G	Being signed off by Tas. Govt	}	
G	Expecting to produce initiatives through IIB, consistent with the strategic plan	}	Anticipating IIB Funding was to implement Tas ICT Ind plan
G	Having expectation their IIB fund was for Tas. IT Industry	}	
G	Having expectation to create initiatives consistent with Industry plan	}	
G	Having money to implement IT Industry plan	}	
G	Wanting to see benefits for the Industry	}	
G	Having problem of seeing it as too much of a commercial investment	<-	Being fearful of failure / wasting IIB funds
G	Being overlooked in big ticket item	}	Dismissing Tas ICT Ind as too small to handle 'big ticket' items [IIB]
G	IIB not thinking there was a IT Industry in Tas. Worth supporting	}	
G	Building strategic plans based on outcomes from the audits	}	Establishing Ind Councils to build on Ind audits [Tas Govt]
G	Providing advice to Govt on what was needed to be done	}	
G	Establishing Industry Councils	<-	Establishing Industry Councils as outcome of Tas Govt Ind audits
G	Giving money to create $200m Industry	}	
G	Going to plan B (MAPP)	}	Funding smaller, achievable ICT projects [MAPP]
G	Letting the fundees carry the risk & helping them through funding	}	
G	Not necessarily expecting a return	<-	Funding Tas ICT Ind projects without expecting ROI [MAPP]
G	Being concerned about lack of business case	}	
G	Feeling need to go back to basics	}	Having concerns regarding business case for Bioinformatics Centre
G	Having trouble seeing the business case	}	
G	Being issues of engagement with Industry	}	
G	IIB not seeing daily imperatives of Industry	}	
G	Needing to work with small vocal minority	}	
G	Not thinking NR engaged with Industry	}	Having difficulty in engaging with Tas business culture & Tas ICT Ind [IIB]
G	NR asking to explain such small minded approaches	}	
G	NR having trouble understanding Tas. Business culture	}	
G	NR not wanting to deal with Industry	}	

G	Never feeling compromised on IIB	<-	Having not been compromised by dual IIB & ITIC membership
G	Being lack of understanding in ITIC of IIB governance	}	
G	Expecting report back from IIB	}	
G	Having issue with way people expected me to represent them	}	
G	Having problems with some people who thought they were being disenfranchised	}	Lacking recognition of governance issue in dual IIB & ITIC membership [ITIC]
G	Keeping Board matters private	}	
G	Need to study governance questions	}	
G	Required to represent interests of ITIC to the IIB	}	
G	Lack of trust of Industry in Govt	}	
G	Non-attendance by J. K. & Premier at council meetings	}	Lacking trust in Tas Govt's understanding of Tas ICT Ind
G	Perception that it would have been better to engage more with Industry	}	
G	Becoming apparent there wasn't a plan B	}	
G	IIB funds not out to be used for miniscule projects	}	
G	IIB kept looking for the big ticket item	}	
G	Looking to spend $40m on big enough item to provide an outcome for everyone	}	Looking for high level, 'big ticket' solutions [IIB]
G	Start looking for the next layer	}	
G	Stop looking for the easy thing	}	
G	To get best value for money	}	
G	Use IIB funds for big ticket items	}	
G	IIB Chair being keen to ensure sustainable investment	<-	Looking for sustainable investment [IIB Chairman]
G	Establishing Intelligent Island Fund	<-	Negotiating II Fund from Telstra sale [B.]
G	CSIRO struggling to engage with Industry	<-	Perceiving CSIRO would struggle to engage with Tas ICT Ind
G	Impression by Industry of lack of benefit	}	Perceiving IIB failed due to lack of perceived benefits for Tas ICT Ind
G	Seeing IIB as not successful	}	
G	Incubator being successful at national level	<-	Perceiving Incubator as being successful at National level
G	Incubator program going off	<-	Perceiving Incubator as meeting Ind need
G	Creating concern amongst people about what was to happen	<-	Perceiving lack of action 'after couple of years' as a concern for Tas ICT Ind
G	Losing five years of possibilities	<-	Perceiving lost 5 years' possibilities due to IIB looking for high ROI
G	Industry not being perceived as strategic by IIB	<-	Perceiving Tas ICT Ind is not strategic [IIB]
G	Engaging University with Industry	}	Perceiving UTas as not appropriate recipient of IIB funding
G	Was a lot of suspicion around	}	
G	Leveraging that investment	<-	Program meeting industry needs, (No) Leveraging of investment
G	Incubator producing businesses that have gone national from nothing	<-	Providing expertise in going National [Incubator]
G	Understanding that IIB did not have awareness of IT Industry plan	<-	Realising DED lacked awareness of Tas ICT Ind plan
G	Recognizing IIB was more strategic in its thinking than ITIC	<-	Recognising IIB often more strategic than ITIC
G	Little leveraging occurring, apart from the Incubator	<-	Recognising Incubator as main project leveraging investment funds
G	Industry not being strategic	}	Recognising ITIC more tactical than strategic [IIB]
G	Recognizing ITIC only thought tactically	}	

G	Leverage $40m to create a bigger pool & get more benefits	}	Recognising leverage of investment needed to create bigger pool of money $40m [IIB]
G	Recognising that $40m needed to be invested wisely	}	
G	Being no attempt to leverage it	}	Recognising leverage of investment needed to create VC funding from $10m
G	Everyone canning it	}	
G	Seeing it as the right thing to do	<-	Recognising MAPP as good compromise
G	Seeking a 50% return, rather than a 500% return	<-	Recognising MAPP as good compromise [smaller ROI still welcomed]
G	Thinking it is unfortunate there is not more money in it	<-	Recognising MAPP was underfunded
G	Could have spent more time assisting people to go national	<-	Recognising risks of Tas businesses going National [missed opportunities to assist] [IIB]
G	Being admirable & very effective	}	
G	Being well regarded	}	Recognising Tas Govt ICT industry audit as valuable
G	Everyone being very happy with it	}	
G	People being very interested & motivated	}	
G	Not having a problem with this	}	Recognising Tas Govt often more strategic than ITIC
G	Often Govt does know better what's best for Industry	}	
G	Asking Interviewee G for Industry input	<-	Seeking Tas ICT Ind input via Int G [IIB Chairman]
G	Conducting Industry audits	<-	Seeking to understand state of Tas Ind through Tas Ind audits [Tas Govt]
G	Realisation of a lot of hidden potential	}	
G	Thinking that MAPP brought out a lot of vision in the Industry	}	Tapping into 'hidden' potential of Tas ICT Ind [MAPP]
G	Flushing out a lot of non-traditional IT businesses, producing initiatives based on IT projects	}	
G	Going to leverage funds against investment	<-	Understanding IIB funds would be leveraged against investment

Interviewee / Page / Diagram	Consequence / Outcome	Consequence / Outcome - 2nd Higher Level Concepts
A-1/6	Accepting CSIRO TasICTC as acceptable alternative	Industry Development - Policy / Strategy
A-1/5,A-1/9	Developing Comps in Schools proposals	Social Good – Intent
A-1/3,A-1/4,A-1/6,A-1/7,A-1/8,A-1/9,A-2/2, A-3/10,A-3/14	Developing Fed Govt's Telstra sale strategy	Industry Development - Policy / Strategy
A-2/2	Developing Fed Govt's Telstra sale strategy [B-eLab-BDF]	National demo projects - Regional focus
A-1/9	Developing Fed Govt's Telstra sale strategy [Comps in Schools]	Social Good – Intent
A-1/4,A-1/6	Developing Fed Govt's Telstra sale strategy [IIB]	Industry Development - Policy / Strategy
A-1/1	Developing Fed Govt's Telstra sale strategy [TECC]	Industry Development - Policy / Strategy
A-1/7	Developing Tas Govt ICT policy / strategy	Industry Development - Policy / Strategy
A-3/12,A-3/13	Wanting to avoid setting TECC as competition by distributing the Fed money	Industry Development - Policy / Strategy
A-1/6,A-2/2,A-3/10,A-3/11	Wanting to do something for the State (Tas) [B.]	Social Good – Intent
A-1/6	Wanting to retain academic / research principles at UTas [Bioinformatics Centre]	Industry Development - Policy / Strategy
B-1/2,B-1/5,B-2/6,B-2/7	[Re]Focussing on product development & network engineering	Corporate agenda
B-3/12	Being seen as a sustainable ICT business in Tas [B-eLab]	Corporate agenda
B-1/1	Being seen as a vote of confidence in Launceston [B-eLab]	Corporate agenda
B-1/1,B-2/7,B-3/14	Bringing ICT research & expertise to Tas [regional area]	Skills base - Development
B-3/16,B-4/19	Developing Community Portal technology	National demo projects - Regional focus
B-1/1,B-1/2,B-2/6,B-2/7	Developing ICT Skills base - Development in Tas [regional area]	Skills base - Development
B-1/3,B-2/6	Being easier to hold good staff in regional area	Skills base - Development
B-3/17	'Fading' away of commercial model for Community Portal	Tech-wreck - Reality check
B-1/1,B-2/6,B-2/7,B-2/10,B-3/12,B-4/20, B-4/21	Focussing on broadband applications [before going public]	National demo projects - Transferability
B-3/16,B-4/21	Focussing on broadband applications [driving uptake] [B-eLab]	National demo projects - Scale up
B-1/1,B-2/8,B-2/9,B-3/12,B-4/21	Focussing on broadband applications [driving uptake] [LBP]	National demo projects - Regional focus
B-1/5	Focussing on broadband applications [systems development]	National demo projects - Regional focus
B-2/11,B-3/15,B-4/20	Focussing on broadband applications [Telstra's marketing needs]	Corporate agenda
B-1/1	Giving Tas ICT & Engineering Graduates options for developing careers [in Region]	Infrastructure & Skills
B-3/16,B-3/17,B-4/18,B-4/19	Looking for sustainable business model for community portal [eLaunceston]	Corporate agenda
B-1/2	Regional focus, Broadband applications, ICT industry development	National demo projects - Regional focus
B-1/3	Securing qualified staff a challenge [ca 2000]	Skills base - Development
B-1/3,B-1/4,B-3/13	Securing qualified staff a challenge [regional area]	Skills base - Development
C-2/7	Developing Tas economy, ICT Ind & ICT skills	Infrastructure & Skills
C-1/1	Developing Tas ICT access & ICT skills	Infrastructure & Skills
C-4/16	Developing Tas ICT Ind	Industry Development - Policy / Strategy
C-3/10,C-3/12,C-4/14,C-4/15	Developing Tas ICT Ind & ICT skills	Industry Development - Policy / Strategy
C-3/13	Developing Tas ICT Ind [business skills]	Industry Development & Business Skills
C-3/13	Developing Tas ICT Ind [global perspective]	Industry Development & Business Skills
C-2/2	Developing Tas ICT infrastructure	Infrastructure
C-1/1	Developing Tas ICT policy & policy [Tas Govt]	Industry Development - Policy / Strategy
C-1/1	Developing Tas ICT policy & practice [Tas Govt]	Industry Development - Policy / Strategy
C-2/8,C-3/10,C-3/11	Developing Tas ICT policy & strategy [IIB]	Industry Development - Policy / Strategy
C-1/1,C-2/4,C-2/7,C-3/12,C-3/13	Developing Tas ICT policy & strategy [Tas Govt]	Skills base - Development
C-2/3	Developing Tas ICT skills	Skills base - Development
C-3/12	Developing Tas Ind & ICT skills	Industry Development
C-1/1	Implementing Fed Govt ICT policy & practice [separating policy & delivery]	Industry Development
C-1/1	Implementing Tas Govt ICT policy [outsourcing]	Industry Development
C-2/6	Lacking direction from Tas Govt [IIB governance]	Lack of state Govt ICT strategy
C-2/5,C-2/6,C-2/9,C-4/14	Managing expectations of IIB initiatives, programs & outcomes	Industry Development - Policy / Strategy
C-2/4	Managing expectations of IIB initiatives, programs & outcomes [social bonus]	Industry Development - Policy / Strategy
C-2/6	Managing relationship between Tas ICT Ind & IIB	Industry Development - Policy / Strategy
C-2/5,C-3/12,C-3/13	Promoting viability of Tas ICT Ind as attractive investment option	Industry Attraction
C-4/14	Refocussing IIB policy & strategy [TasICTC]	Loss of impetus
C-1/1	Refocussing Tas Govt policy & practice [post change of Tas Govt]	Social Good – Intent - Thwarted by change of Govt / personnel
D-1/1	Assessing effectiveness of TECC policy & practice [health of Tas ICT Ind]	Industry Development
D-3/18	Creating alliance between TECC, Tas ICT Ind, Business, & Tas Govt to lobby Fed Govt	Industry Development - Policy / Strategy
D-1/1,D-3/16	Creating demand for ICT services [TECC policy & practice]	ICT Draw through

Interviewee / Page / Diagram	Consequence / Outcome	Consequence / Outcome - 2nd Higher Level Concepts
D-1/1	Creating a demand for services from existing ICT businesses	ICT Draw through
D-3/13	Developing a body of knowledge	Body of Knowledge
D-3/12	Developing a body of knowledge [with UTas]	Body of Knowledge
D-1/1	Developing ICT showcases & accelerating EC uptake [co-investment]	ICT Demo projects - Regional focus
D-1/1	Developing relationships with Tas ICT Ind	Engagement - Ind / Agencies / Stakeholders
D-1/1,D-2/2,D-2/4,D-3/11	Developing Tas business ICT practice & skills	Business ICT Skills / Practice
D-3/16	Developing Tas business ICT practice & skills [Corp & Govt]	Business ICT Skills / Practice
D-1/1	Developing Tas business ICT practice & skills to national / international standards	Business ICT Skills / Practice
D-1/1	Developing Tas business practice & skills	Business ICT Skills / Practice
D-2/9	Establishing AECC [exporting body of knowledge]	National demo projects - Transferability
D-2/9	Establishing AECC [National]	National demo projects - Transferability
D-1/1	Establishing TECC policy & strategy [ICT awareness & uptake - not ICT Ind development]	Industry Development - Policy / Strategy
D-2/6	Influencing Tas Govt policy & practice [supply chain & EC systems development]	Industry Development - Policy / Strategy
D-1/1,D-2/7,D-3/16	Managing relationship between Tas ICT industry & TECC	Engagement - Ind / Agencies / Stakeholders
D-1/1,D-2/3,D-3/10,D-3/20	Raising awareness of business use of ICTs	Business ICT Skills / Practice
D-1/1	Reducing risks for traditional Tas businesses [of using ICT]	Business ICT Skills / Practice
D-2/5,D-2/8,D-3/15,D-3/19,D-3/21	Refocussing of TECC policy & practice [response to changing demands / funding]	Refunding of TECC
D-2/8,D-3/16	Refocussing on Infrastructure investment	Refunding of TECC
D-3/14	Retaining independent from other Fed Govt funded programs	Industry Development - Policy / Strategy
D-3/17	Shaping of TECC policy, strategy & practice by shareholders	Industry Development - Policy / Strategy
D2-1/1,D2-3/8,D2-3/18	Creating demand for ICT services [TECC policy & practice]	ICT Draw through
D2-2/13,D2-2/6,D2-3/15,D2-3/8,D2-4/19	Developing a body of knowledge	Body of Knowledge
D2-1/3,D2-2/10,D2-3/8,D2-3/16	Developing ICT showcases & accelerating EC uptake [co-investment]	ICT Demo projects - Regional focus
D2-1/5	Developing supply chain & EC systems	National demo projects - Scale up
D2-1/5,D2-2/6	Developing supply chain & EC systems [through Ind partnerships]	National demo projects - Scale up
D2-1/1,D2-1/3,D2-1/4,D2-2/6,D2-3/8, D2-3/18,D2-4/19	Developing Tas business ICT practice & skills	Business ICT Skills
D2-1/2	Developing Tas business ICT practice & skills to national / international standards	Business ICT Skills
D2-1/2	Developing Tas Govt ICT policy & strategy	Industry Development - Policy / Strategy
D2-2/12	Developing Tas ICT skills	Skills base - Development
D2-1/2,D2-2/7	Developing TECC policy, & strategy	Industry Development - Policy / Strategy
D2-1/2	Developing TECC proposal	Industry Development - Policy / Strategy
D2-4/19	Developing TECC structure, policy, & practice	Industry Development - Policy / Strategy
D2-4/19	Developing TECC structure, policy, & strategy	Industry Development - Policy / Strategy
D2-1/1	Establishing TECC policy & strategy [ICT awareness & uptake - not ICT Ind development]	Industry Development - Policy / Strategy
D2-1/5	Influencing Tas Govt policy & practice [supply chain & EC systems development]	Industry Development - Policy / Strategy
D2-1/2	Maintaining state-wide stakeholder consultations	Industry Development - Policy / Strategy
D2-2/13,D2-2/14	Managing relationship between UTas / SoIS & TECC [potential not met]	Engagement - Ind / Agencies / Stakeholders
D2-1/4,D2-1/5,D2-2/7,D2-2/9,D2-2/10,D2-3/8	Raising awareness of business use of ICTs	Business ICT Skills
D2-2/10,D2-2/11,D2-3/8	Reducing risks for traditional Tas businesses [of using ICT]	Business ICT Skills / Practice
D2-2/6,D2-2/7,D2-3/8,D2-4/20	Refocussing of TECC policy & practice [response to changing demands / funding]	Refunding of TECC
D2-4/20	Refocussing on Infrastructure investment	Refunding of TECC
E-2/5,E-3/11	Creating demand for ICT services [TECC policy & practice]	ICT Draw through
E-2/4,E-3/12,E-4/17	Developing a body of knowledge	Body of Knowledge
E-2/4,E-4/17	Managing relationship between Tas ICT Ind & TECC	Engagement - Ind / Agencies / Stakeholders
E-2/4,E-3/13	Developing ICT showcases & accelerating EC uptake [co-investment]	Demo projects - Regional focus
E-2/4,E-2/5,E-3/11,E-3/13	Developing Tas business ICT practice & skills	Business ICT Skills
E-3/9	Developing Tas business ICT practice & skills [not duplicating existing services]	Business ICT Skills
E-2/5	Developing Tas Govt ICT policy & strategy	Industry Development - Policy / Strategy
E-1/3,E-2/4	Developing TECC policy & practice	Industry Development - Policy / Strategy
E-1/3	Developing TECC policy & strategy	Industry Development - Policy / Strategy
E-1/1,E-1/3	Developing TECC proposal	Industry Development - Policy / Strategy
E-1/2,E-1/3	Developing TECC structure, policy, & strategy	Industry Development - Policy / Strategy
E-4/14	Focussing on service delivery [TECC policy & strategy]	Industry Development - Policy / Strategy
E-4/14,E-4/19	Focussing on service delivery [TECC policy, practice & funding]	Industry Development - Policy / Strategy
E-4/14	Lack of TECC brand awareness	Industry Development - Policy / Strategy

Interviewee / Page / Diagram	Consequence / Outcome	Consequence / Outcome - 2nd Higher Level Concepts
E-4/18,E-4/21	Lacking EC uptake drivers in Tas	Industry Development - Policy / Strategy
E-4/18,E-4/20,	Lacking understanding of potential of TECC by UTas [shareholder]	Engagement - Ind / Agencies / Stakeholders
E-3/7,E-3/8,E-3/10	Maintaining state-wide stakeholder consultations	Industry Development - Policy / Strategy
E-4/16	Managing relationship with Tas & Fed Govt	Engagement - Ind / Agencies / Stakeholders
E-2/5	Managing relationship with Tas ICT Ind	Engagement - Ind / Agencies / Stakeholders
E-1/3,E-2/4,E-2/5,E-3/11	Raising awareness of business use of ICTs	Business ICT Skills
E-3/13	Refocussing TECC policy & practice [response to changing demands / funding]	Refunding of TECC
E-4/15	Securing additional funding [Validation of TECC policies and practice]	Refunding of TECC
F-2/3	Accepting risks of New Brunswick model [easy relocation]	Industry Development - Policy / Strategy
F-3/4	Accepting TECC proposal by NTN	Industry Development - Policy / Strategy
F-3/4	Accepting TECC proposal by NTN [late 1996]	Industry Development - Policy / Strategy
F-2/3	Adopting New Brunswick model as blueprint for Tas Govt ICT strategy	Industry Development - Policy / Strategy
F-2/3	Adopting New Brunswick model as blueprint for Tas Govt ICT strategy [low capital investment]	Industry Development - Policy / Strategy
F-2/3	Adopting New Brunswick model as blueprint for Tas Govt ICT strategy [low knowledge capital investment]	Industry Development - Policy / Strategy
F-7/18	Advocating broadband infrastructure development [NTD]	Industry Development - Policy / Strategy
F-8/21,F-8/22	Becoming locked into early generation solutions [early adopters]	Technology determinacy verses non-determinacy
F-7/15	Broadening focus to include eLogistics [UTas SoIS]	Industry Development - Policy / Strategy
F-4/6	Changing ICT policy focus & losing staff following change of Tas Govt [1998]	Social Good – Intent - Thwarted by change of Govt / personnel
F-4/6	Changing ICT policy focus following change of Tas Govt [1998]	Social Good – Intent - Thwarted by change of Govt / personnel
F-8/21	Changing status of ICT availability, use and acceptance [rare -> ubiquitous]	Changing ICT environment
F-6/12	Consulting TECC re joint PhD funding / sponsorship applications [SoIS] [no outcome]	Engagement - Ind / Agencies / Stakeholders
F-6/10	Developing a body of knowledge [focus on quick results]	Body of Knowledge
F-6/10	Developing a body of knowledge [TECC - SoIS]	Body of Knowledge
F-4/9,F-5/7	Developing a body of knowledge [TECC]	Body of Knowledge
F-4/9,F-6/10	Developing a body of knowledge [TECC-SoIS]	Body of Knowledge
F-4/6	Developing Comps in Schools proposals	Industry Development - Policy / Strategy
F-4/6	Developing Comps in Schools proposals [up-skilling teachers]	Skills base - Development
F-8/19	Developing cross-disciplinary research programs [UTas] [no outcome]	Engagement - Ind / Agencies / Stakeholders
F-6/11	Developing Fed Govt's Telstra sale strategy [TECC]	Industry Development - Policy / Strategy
F-7/17	Developing ICT showcases & accelerating EC uptake [co-investment]	ICT Demo projects - Regional focus
F-7/16	Developing ICT showcases & accelerating EC uptake [co-investment] [B-eLab-BDF]	ICT Demo projects - Regional focus
F-4/5,F-4/9,F-5/7,F-7/16	Developing ICT showcases & accelerating EC uptake [co-investment] [TECC-BDF]	ICT Demo projects - Regional focus
F-6/10	Developing joint funding applications with Ind [TECC, IIB, Ericsson]	Engagement - Ind / Agencies / Stakeholders
F-4/8	Developing supply chain & EC systems [through Ind partnerships] [TECC]	ICT Demo projects - Regional focus
F-1/1,F-2/3,F-3/4	Developing Tas ICT policy & strategy [Tas Govt]	Industry Development - Policy / Strategy
F-4/5	Developing TECC policy & practice [SME focus]	Industry Development - Policy / Strategy
F-3/4	Developing TECC proposal [UTas & Tas Govt]	Industry Development - Policy / Strategy
F-3/4	Developing TECC proposal [UTas input]	Industry Development - Policy / Strategy
F-3/4	Developing TECC structure & governance	Industry Development - Policy / Strategy
F-1/1,F-1/2	Developing WoG approach to ICT [Tas Govt]	Industry Development - Policy / Strategy
F-7/15	Engaging SoIS academics with Ind [Logistics]	Engagement - Ind / Agencies / Stakeholders
F-7/17	Engaging with other agencies [TECC - Ltn Incubator]	Engagement - Ind / Agencies / Stakeholders
F-7/18	Establishing AECC [Accelerating EC uptake on 'National' scale]	National demo projects - Transferability
F-6/10,F-7/16	Establishing LDDF in Ltn to network ICT Ind & Govt Agencies [TECC]	Engagement - Ind / Agencies / Stakeholders
F-6/14	Failing to use TECC to deliver skills & investment attraction programs [TECC - IIB]	Industry Development - Policy / Strategy
F-6/10	Funding PostGrads at SoIS [TECC] [no outcome]	Skills base - Development
F-6/10	Funding senior research position at SoIS [TECC]	Engagement - Ind / Agencies / Stakeholders
F-1/2	Having a conflict of interest by co-locating policy & delivery in one dept [Tas Govt]	Industry Development - Policy / Strategy
F-2/3	Identifying potential development partnerships [New Brunswick model]	Industry Development - Policy / Strategy
F-1/1,F-1/2	Implementing Fed Govt ICT policy & practice [separating policy & delivery]	Industry Development - Policy / Strategy
F-8/24	Lacking appropriate academic staff to develop potential relationship with TECC [SoIS]	Skills base - Development
F-8/19	Lacking appropriate support & academic staff to establish working EC lab [SoIS]	Skills base - Development
F-6/13	Lacking direction / communication from UTas [TECC]	Engagement - Ind / Agencies / Stakeholders
F-5/7	Lacking EC demonstration products	ICT Demo projects - Regional focus
F-5/7	Lacking EC showcases [TECC-SoIS]	ICT Demo projects - Regional focus
F-8/19	Lacking funds to acquire technical support & infrastructure to develop desired research projects [SoIS]	Skills base - Development

Interviewee / Page / Diagram	Consequence / Outcome	Consequence / Outcome - 2nd Higher Level Concepts
F-5/7	Lacking knowledge transfer to Tas businesses [TECC]	Body of Knowledge
F-5/7	Lacking learnings / demonstrations of next level ICT use [TECC]	ICT Demo projects - Regional focus
F-4/8	Lacking realisation of potential of TBO [TECC-Tas Govt]	Engagement - Ind / Agencies / Stakeholders
F-8/19	Lacking realisation of potential of TECC [UTas]	Engagement - Ind / Agencies / Stakeholders
F-6/10	Lacking realisation of potential of TECC as SME portal [UTas]	Engagement - Ind / Agencies / Stakeholders
F-6/10	Lacking recognition of potential value of partnership [IIB-TECC-Ericsson]	Engagement - Ind / Agencies / Stakeholders
F-1/2	Learning from Fed & other State Govts to 'leap-frog other States in ICT policy & practice	Industry Development - Policy / Strategy
F-2/3	Learning from other regional ICT development policies & practice [Ireland, etc]	Industry Development - Policy / Strategy
F-4/5	Learning from other regional ICT development policies & practice [Manchester]	Industry Development - Policy / Strategy
F-8/23	Managing perception of SoIS funding windfall [mainland Unis]	Engagement - Ind / Agencies / Stakeholders
F-4/5	Managing relationship between Tas ICT industry & TECC	Engagement - Ind / Agencies / Stakeholders
F-3/4	Presenting TECC proposal & budget to Towards 2010 reference group	Industry Development - Policy / Strategy
F-1/2	Producing policy & guidelines to reduce risk in large projects [CIPU-Tas Govt]	Body of Knowledge
F-6/10	Promoting each other's programs [TECC-SoIS]	Engagement - Ind / Agencies / Stakeholders
F-6/10	Providing immediate benefits to Tas businesses [TECC / SoIS]	Industry Development - Policy / Strategy
F-4/6	Publishing Comps in Schools proposal [Directions Statement]	Industry Development - Policy / Strategy
F-4/6	Publishing Directions Statement by Tas Govt [1997]	Industry Development - Policy / Strategy
F-1/1	Publishing ICT guidelines [Fed Govt]	Industry Development - Policy / Strategy
F-5/7	Raising awareness of business use of ICTs	Business ICT Skills / Practice
F-5/7	Realising full potential of funded projects not always reached [BDF]	Business ICT Skills / Practice
F-3/4	Receiving support from business community for TECC proposal [TCCI]	Business ICT Skills / Practice
F-1/2	Recognising risk in large projects and establishing CIPU [Tas Govt]	Body of Knowledge
F-1/2	Recognising risk of co-location of ICT policy & practice [Tas Govt]	Industry Development - Policy / Strategy
F-8/23,F-8/24	Struggling to propagating ICT infrastructure big picture [SoIS]	Industry Development - Policy / Strategy
F-8/23	Struggling to propagating ICT infrastructure big picture [TECC]	Industry Development - Policy / Strategy
F-8/20	Struggling to receive acceptance of need for, and viability of Tas ICT infrastructure development	Infrastructure
F-3/4	Struggling to receive acceptance of need for, and viability of TECC proposal	Industry Development - Policy / Strategy
F-4/9	Supporting UnderGrads projects & PostGrads at SoIS [TECC]	Skills base - Development
G-3/20	Accepting IIB Chairman as good choice [Int G]	Industry Development - Policy / Strategy
G-3/18	Accepting MAPP took too long to establish & missed opportunities	Industry Development - Policy / Strategy
G-2/9	Accepting no easy solutions for IIB	Industry Development - Policy / Strategy
G-4/21	Accepting Tas ICT Ind is generally tactical [IIB]	Industry Development - Policy / Strategy
G-2/8	Accepting there are no easy solutions [IIB]	Industry Development - Policy / Strategy
G-3/13	Acknowledging IIB members as strategic thinking	Industry Development - Policy / Strategy
G-1/2,G-1/3	Anticipating IIB Funding was to implement Tas ICT Ind plan	Industry Development - Policy / Strategy
G-3/17	Being fearful of failure / wasting IIB funds	Risk culture
G-2/11,G-4/21	Dismissing Tas ICT Ind as too small to handle 'big ticket' items [IIB]	Industry Development - Policy / Strategy
G-1/3	Establishing Ind Councils to build on Ind audits [Tas Govt]	Industry Development - Policy / Strategy
G-1/3	Establishing Industry Councils as outcome of Tas Govt Ind audits	Industry Development - Policy / Strategy
G-2/10,G-3/15	Funding smaller, achievable ICT projects [MAPP]	ICT Demo projects - Regional focus
G-3/15	Funding Tas ICT Ind projects without expecting ROI [MAPP]	ICT Demo projects - Regional focus
G-2/9	Having concerns regarding business case for Bioinformatics Centre	Industry Development - Policy / Strategy
G-4/21,G-4/25	Having difficulty in engaging with Tas business culture & Tas ICT Ind [IIB]	Engagement - Ind / Agencies / Stakeholders
G-5/22	Having not been compromised by dual IIB & ITIC membership	Industry Development - Policy / Strategy
G-5/22	Lacking recognition of governance issue in dual IIB & ITIC membership [ITIC]	Industry Development - Policy / Strategy
G-3/12	Lacking trust in Tas Govt's understanding of Tas ICT Ind	Industry Development - Policy / Strategy
G-1/4,G-2/9,G-2/11	Looking for high level, 'big ticket' solutions [IIB]	Industry Development - Policy / Strategy
G-3/13	Looking for sustainable investment [IIB Chairman]	Industry Development - Policy / Strategy
G-1/3	Negotiating II Fund from Telstra sale [B.]	Social Good – Intent
G-3/19	Perceiving CSIRO would struggle to engage with Tas ICT Ind	Engagement - Ind / Agencies / Stakeholders
G-3/14	Perceiving IIB failed due to lack of perceived benefits for Tas ICT Ind	Industry Development - Policy / Strategy
G-2/7	Perceiving Incubator as being successful at National level	Innovative environment
G-2/7	Perceiving Incubator as meeting Ind need	Innovative environment
G-2/6	Perceiving lack of action 'after couple of years' as a concern for Tas ICT Ind	Industry Development - Policy / Strategy
G-3/17	Perceiving lost 5 years' possibilities due to IIB looking for high ROI	Risk culture
G-3/12	Perceiving Tas ICT Ind is not strategic [IIB]	Industry Development - Policy / Strategy

Interviewee / Page / Diagram	Consequence / Outcome	Consequence / Outcome - 2nd Higher Level Concepts
G-1/1	Perceiving UTas as not appropriate recipient of IIB funding	Industry Development - Policy / Strategy
G-2/7	Program meeting industry needs, (No) Leveraging of investment	Industry Development - Policy / Strategy
G-5/24	Providing expertise in going National [Incubator]	Thresh-holding
G-1/3	Realising DED lacked awareness of Tas ICT Ind plan	Engagement - Ind / Agencies / Stakeholders
G-5/22	Recognising IIB often more strategic than ITIC	Industry Development - Policy / Strategy
G-2/5	Recognising Incubator as main project leveraging investment funds	Industry Development - Policy / Strategy
G-5/22	Recognising ITIC more tactical than strategic [IIB]	Industry Development - Policy / Strategy
G-2/5	Recognising leverage of investment needed to create bigger pool of money $40m [IIB]	Industry Development - Policy / Strategy
G-3/16,G-3/26	Recognising leverage of investment needed to create VC funding from $10m	Industry Development - Policy / Strategy
G-3/18	Recognising MAPP as good compromise	Industry Development - Policy / Strategy
G-2/11	Recognising MAPP as good compromise [smaller ROI still welcomed]	Industry Development - Policy / Strategy
G-3/18	Recognising MAPP was underfunded	Industry Development - Policy / Strategy
G-5/23	Recognising risks of Tas businesses going National [missed opportunities to assist] [IIB]	Thresh-holding
G-1/3	Recognising Tas Govt ICT industry audit as valuable	Industry Development - Policy / Strategy
G-5/22	Recognising Tas Govt often more strategic than ITIC	Industry Development - Policy / Strategy
G-4/21	Seeking Tas ICT Ind input via Int G [IIB Chairman]	Industry Development - Policy / Strategy
G-1/3	Seeking to understand state of Tas Ind through Tas Ind audits [Tas Govt]	Industry Development - Policy / Strategy
G-3/15,G-3/18	Tapping into 'hidden' potential of Tas ICT Ind [MAPP]	Industry Development - Policy / Strategy
G-1/4	Understanding IIB funds would be leveraged against investment	Industry Development - Policy / Strategy